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THE UNIVERSITY OF ALBERTA

ENVIRONMENTAL EDUCATION: AN INTERPRETIVE STUDY OF ELEMENTS ENCOURAGING ENVIRONMENTALLY RESPONSIBLE BEHAVIOR

BY

LAURA A. KEETH (C)

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES

AND RESEARCH IN PARTIAL FULFILMENT OF THE

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled Environmental Education: An Interpretive Study of Elements Encouraging Environmentally Responsible Behavior submitted by Laura A. Keeth in partial fulfillment of the requirements for the degree of Master of Education

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For the Earth

ABSTRACT

This study examines some reasons why people become active in protecting the environment and suggests how educators can facilitate this process within their classrooms. By using a combination of situational interpretive and critical inquiry approaches, I was able to explore the experiences people had in trying to teach, take or promote environmental action. Four viewpoints were used to triangulate on the phenomenon of environmental action: teachers, students, environmentalists, and myself. I included myself as a subject of inquiry since my own experience of coming to action coincided with the writing of this thesis.

Each of the first three groups (teachers, students, environmentalists) were interviewed to collect data. Teachers and students were interviewed in person and our conversations were recorded on audio cassette tape. The environmentalists were contacted by letter and asked to answer several open-ended questions about their experiences with action. The transcipts from these interviews served as the data which was interpreted through a process called thematic analysis. The themes that emerged from each group were compared and contrasted with each of the other groups. My own experience was related in the form of a story of my personal history of coming to action. These four views were then synthesized to reveal a picture of factors that encourage environmentally responsible behavior.

The picture of encouraging environmentally responsible behavior that emerges from this study is as follows: A person must have/develop a recognized affinity for the Earth and the life processes that define her. He or she must have key experiences of interaction with a mentor who helps develop his or her self-esteem and affinity for the Earth. There must be a redefinition of the role of knowledge in environmental education to allow for experiential knowledge in addition to intellectual knowledge of an appropriate level. And there must be some sort of association and support from

other people who are interested in protecting and preserving the Earth. The implications of this synthesis for teachers, the present school system, and teacher education are discussed

ACKNOWLEDGEMENTS

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To my love, Gord: you bright spirit illuminated every step of my journey.

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Now I see the secret of the making of the best persons.

It is to grow in the open air, and to eat and sleep with the earth.

—*Walt Whitman*, Leaves of Grass

THE ISSUE

The writing of this thesis has been as much a study of the evolution of a thought or idea as the phenomenon it was designed to explore. As a consequence, it has often been difficult to restrict the focus to the original purpose. The more I learned about the problems of environmental empowerment and action, the more I realized that they are expressions of a greater, more 'universal' problem our planet faces.

We are all familiar with the litany of ills our world is experiencing. The greenhouse effect, famines, acid rain, human rights violations, deforestation, nuclear arms, ozone depletion, corrupt governments, poverty, crime . . . the list is long. And, it is difficult at times to see how these problems are related. The average North American receives precious little connectivity from the nightly news. Each problem is isolated into a two to three minute segment that presents "the facts, ma'am, just the facts." If opinions or values are presented, they too are merely someone else's *personal* facts. But these problems **are** related; and they're related in a way that has long reaching and fundamental implications for the transformation of our world.

Willis Harman describes this phenomenon in the following way:

> *The world lacks a vision of a viable global future*. The industrialized world, having lost any consensus on ultimate meanings and values, steers itself mainly by economic and financial signals serving as pseudo-values. . . . Since there is no "reality" to inner experience, transcendent values have no power and materialistic values prevail. . . . The economic rationalization of knowledge leads to the "knowledge industry": to science justified by the technology it produces; to education justified by the jobs it prepares for. Economic rationality becomes predominant in social and political decision making, even when the decisions it leads to are unwise by other standards (such as the well being of future generations). Technological solutions are attempted for problems that are basically socio-political in nature. The worth of

> persons is assessed by their value in the economy. Man's relationship to the Earth is essentially an exploitative one. (1988:113-114)

In a sense, the prevailing mechanistic world view has reached its pinnacle of expression. If living things are reducible to the actions of molecules, if human thought and memory are nothing more than chemical reactions, then it is only reasonable to assume that the products of those phenomena (relationships, societies, culture) would be subject to the same 'values' that created them in the first place. In biological terms, those 'values' are called natural selection: survival of the fittest.

In social terms, 'survival of the fittest' creates a system in which success is measured by access to resources necessary for survival. Unfortunately, the controls that limit the expression of such acquisitiveness in social systems have little to do with the natural systems upon which they depend. As a consequence, the damage that human populations are capable of inflicting on the earth before it responds is quite great.

The earth experiences a great deal of the damage caused by the actions of human societies, but the effects are seen in the relationships between human beings as well. The world is viewed as competitive and dangerous. Selfish needs and wants guide nearly every interaction. There is no greater good since individual survival is the ultimate goal.

Admittedly, this is a gross simplification. Many authors have examined the evolution of human societies in much greater detail. Some have attempted to show that the current problems can be traced back to the industrial revolution and its associated Protestant Work Ethic (Weber, 1958). Others have pointed to the combined "forces of democracy, technology, urbanization, increasing individual wealth and an aggressive attitude toward nature" (Moncrief, 1970). The scientific (Cartesian) revolution associated with the formal split between the mind and the body has been implicated (Berman, 1981). The invasion of the co-operative, largely matriarchial cultures of Europe around 3000 B.C. by the dominator cultures of the Asian steppes has been examined (Eisler, 1987). It is difficult, if not impossible, to determine which of these theories holds 'the truth' of social evolution. It is quite likely that our present social organization is a result of influences from all of these developments. And, while it is important that we understand the events

that have contributed to the current situation in which we find ourselves, it is more important that we know **why** those events occurred and **how** we can change the current course to a '*vision of a viable global future*.'

After having explored such a diverse area, it is understandably difficult to return to the problem at hand, namely: how can educators help students become more active with respect to environmental problems? And yet, it is not; because I believe that the approach to solving this problem may hold some of the seeds of a way to bring about the changes that are needed to attain that viable global future.

RATIONALE

My exposure to environmental education began in the fall of 1985. Until then, I had never seriously considered environmental issues. My undergraduate work in biology had focused on the workings of the biological systems of the world, not the state of those systems. Then, in the spring of 1985, I took a course in the Department of Secondary Education at the University of Alberta. It is a standard, compulsory, course that all Secondary Education graduate students "must" take dealing with curriculum theory and evaluation. The instructor for this course, however, was anything but standard. Although the people in the class came from diverse teaching subject areas, Dr. Aoki gently guided each person into a deeply reflective place. He was able to draw from each of us, through what we knew explicitly and implicitly, an essence that defined humanity. I was forced to question the assumptions I held about nearly every aspect of biology and science in general. No longer could I defend the a-political, a-social science I had been taught at my undergraduate university. Biologists (and scientists) must acknowledge the effects their efforts can have on society and the environment. I felt I had a responsibility to use these new points of view in a constructive way.

During that summer, I returned to my home state of Oregon to visit my parents. Oregon is a very special place for me. The variety of landscapes and habitats make it a naturalist's dream. Within a few hours from where my parents live, I can be in an old-growth forest, an ocean tide-

pool, a sagebrush prairie, or a high desert plateau. I feel a connectedness to the earth there in a way I have not experienced in any other place. That summer, I began to think about my relationship to this unique place. I realized that I had a responsibility to work towards preserving its natural condition. For me, this meant exploring ways to develop the feelings I had experienced in others so that current destructive practices could be examined and stopped. For me, this meant environmental education. When I returned to my studies in the fall, I began to explore the area.

One thing became very clear as my interest in environmental problems increased: I was not following through with what I felt were 'appropriate behaviors'. My knowledge of and concern over the issues was high, but my participation in solutions to the issues was low. I realized that a great deal of this lack of action rested in my perceived inability to change the situations I felt were unacceptable. The problems were so big that my input seemed insignificant. Conversations with friends and students supported this observation. When I asked the students in an environmental issues course I was teaching how they felt about the problem, the overwhelming reaction was one of helplessness and depression. They felt concerned about the issues but unable to take action.

The implications of this problem are important for the future of environmental education. All of the knowledge, skills, and attitude development in the world will mean nothing if we fail to address the student's basic need to feel that he/she can have an impact on the actions and decisions affecting the environment. Unfortunately, the majority of the research and theorizing that has occurred in environmental education has focused exclusively on standard curricular concerns such as those mentioned above. It is essential that we develop a better understanding of the experience of action and the human place from which it comes.

PURPOSE AND DESIGN

The question of methodology for this study has been almost as important as the problem itself. As researchers, we all make decisions about research methodologies that affect every aspect of the problems we endeavor to examine. Perhaps the most fundamental decision a researcher makes has

to do with the questions she/he decides to explore. Those questions are determined, in large part, by the research orientation the person decides to follow.

In the human sciences, three primary orientations have emerged: ends–means or empirical, situational interpretive, and critical inquiry (Soltis, 1984; Aoki, 1984). Aoki differentiates between the three orientations on the basis of cognitive interests (values), forms of knowing, and mode of evaluation (Table 1).

The interests displayed by each orientation speak to the underlying purpose of that type of research. For empirical inquiry, the interest is in control of the phenomenon being investigated. Erickson traces this interest back to Comte in the mid–19th century, who, he writes, "proposed a positivist science of society, modeled after the physical sciences, in which causal relations were assumed to be analogous to those of mechanics in Newtonian physics" (1986:124). This type of research has been adopted readily by Western societies because it presents a view of human behavior that seems predictable and manageable. Shapiro describes this 'most seductive aspect of normal science':

> Such developments are inextricably tied up with the desire to make predictable human behavior: to view such behavior and the experiences underpinning it) as determined by the laws of causality. It is to argue that under specific and constant conditions and in the presence of a particular stimulus, *a universal response may be attained.* (1983:128, italics added)

Once a universal response can be predicted and attained, it is, theoretically, possible to control the behavior to meet certain goals. When certain individuals or situations respond in an anomalous manner, it is assumed that the theory has not accounted for some as yet unknown variable. When that variable is known, the control can proceed in the normal fashion.

The interests displayed by situational interpretive research reflect a much different view of human behavior. Here, the emphasis is on the ways in which people give meaning to the situations they experience. According to Erickson (1986), interpretive research is designed to study the actions people take (which arise out of meanings they give to situations) rather than the behaviors they exhibit (which, by definition, are not linked to interpretation). It is essential that we learn how to uncover these meaning structure because:

Table 1

Interests, Knowledge and Evaluation Modes In Human Science Research Orientations*

Research Orientations	Ends–Means (Empirical) Inquiry	Situational Interpretive Inquiry	Critical Inquiry
Cognitive Interests (Values)	•Interest in control, certainty, prediction, efficiency	•Practical interest in meaningful inter–subjective communication	•Interest in emancipation from hidden assumptions or distorted human condition
Forms of Knowing	•Empirical knowing •Understanding in terms of facts, generalizations, laws, theories •Explaining: Giving causal, functional or hypothetical deductive reasons	•Situational knowing •Understanding in terms of deep structure of meaning •Explaining: Striking a resonant chord by clarifying motives, common meanings	•Critical knowing •Understanding hidden assumptions, perspectives, motives, rationalizations, ideologies •Explaining: Tracing to underlying unreflected aspects
Mode of Evaluation	•Ends–means evaluation •Achievement oriented, goal based, criterior referenced, cost–benefit	•Situational evaluation •Quality of meanings people in situation give.	•Critical evaluation •Dis–covering through critical reflection underlying human condition (interests, values, assumptions, perspectives, root metaphors) •Implied implication foraction to improve condition

* Adapted from Aoki, T. T., 1984, Interests, Knowledge, and Evaluation: Alternative Curriculum Evaluation Orientations in Curriculum Evaluation in a New Key, T. T. Aoki (ed.), Curriculum Praxis Monograph #10, Department of Secondary Education, University of Alberta, Edmonton, Alberta, Canada.

> In a given situation of action one cannot assume that the behaviors of two individuals, physical acts with similar form, have the same meaning to the two individuals. The possibility is always present that different individuals may have differing interpretations of the meaning of what, in physical form, appear to be the same or similar objects of behaviors. . . . If people take action on the grounds of their interpretations of the actions of others, then the meaning-interpretations themselves are causal for humans. This is not true in nature, and so the point of view of the actor is not something the scientist must discover. The billiard ball does not make sense of its environment. But the human actor in society does, and different humans make sense differently. The impute symbolic meaning to others' actions and take their own actions in accord with the meaning interpretations they have made. Thus the nature of *cause* in human society becomes very different from the nature of cause in the physical and biological world, and so does the nature of uniformity in repeated social actions. Because such actions are grounded in choices of meaning interpretations, they are always open to the possibility of reinterpretation and change. (Erickson, 1986:126-127)

The interest, then, lies in coming to an understanding of the meanings people give to situations, not for prediction's sake, but for building a deeper understanding of the human condition. "At its core, the essence of understanding is to put oneself in the place of the other—something which is only possible if one possesses a degree of empathy with the other or has the disposition to recreate the experiences." (Smith, 1983:12)

Research in the critical orientation takes the understandings developed through interpretive research beyond the status quo to an "emancipation from hidden assumptions of underlying human conditions" (Aoki, 1984:14). Based on a combination of critical social theory, neo-Marxist thought and liberation pedagogy, this orientation focuses on examining the unconsciously accepted ways of doing things in our society and changing those aspects that reflect interests detrimental to the human spirit. This change aspect is essential since "critical sense-making without transformation ends in cynicism" (Werner, 1984).* It is necessary to think critically in educational research because interpretation alone often does not explicate those hidden assumptions. Interpretive research allows us to more deeply understand the human condition, but critical research enables us to change those aspects of the human condition which create dissonance. As Werner states:

> In terms of the classroom, critical interpretation is necessary because through a program people guide student thinking and interpret experience for them. Students may be manipulated in terms

---

* To some extent, this may, partially, be what is happening with many teachers today. They have come to realize that the system in which they teach promotes a certain set of values which they feel are harmful to the human spirit, let alone human learning. Because of the size of the system and the interests involved in perpetuating the status quo, they are unable to effect real change. Hence the high rate of teacher burn-out (read: cynicism).

> of a particular group's interests, and be taught to accept uncritically certain values and beliefs. Since the developers may have the power to control the thinking of students, and evaluator needs to ask the question, "In whose interest is this power and control exercised?"
>
> Therefore, viewpoints should be made explicit since we can change our beliefs as we recognize the consequences they may have for our activities. If we fail to question them, then we may treat social realities, shaped and maintained in our beliefs, as having an autonomous existence apart from us. We tend to reify them. Consequently, fundamental changes in programs represent changes of underlying belief, value stances, and perspective. (1984:33)

In essence, then, the product of critical inquiry is the process of critical inquiry: reflection and action combined to give praxis. In this process, the researcher is not separate from the subject nor from the process:

> Such reflective activity is guided by interest in revealing the root condition that makes knowing possible, or in revealing the underlying human and social conditions that distort human existence, distortions that tend to alienate man. Thus, critical evaluators attempt to determine when theoretical statements grasp invariant regularities of human and social action when they express ideologically frozen relations of dependence that can, in principle, be transformed.
>
> . . . Thus a critically oriented evaluator himself becomes a part of the object of the evaluation research. The evaluator in becoming involved with his subjects, enters into their world and attempts to engage them mutually in reflective activity. . . . Hence in the ongoing process which is dialectical and transformative, both evaluator and subjects become participants in an open dialogue. (Aoki, 1984:11-12)

While the epistemological differences between these different orientations are extensive, it is important to remember that the distinctions are not definite. The orientations exist more as a continuum. In a sense, empirical inquiry directs the researcher toward a problem by identifying areas in which behaviors and interactions are causing problems. Interpretive inquiry then moves the focus from the quantitative (which limits the level of inquiry) to the qualitative, from the behavior to the action. Finally, critical inquiry moves beyond simple inquiry to a dialectical understanding of the relationship between human actions and human belief systems.

Another important factor in my decision of which methodology to use in my study came from my understanding (minor though it is) of the developments in the new physics. My readings in this area had a profound influence on how I perceived reality and research. Prior to exploring this area, I was still fairly well entrenched in the empirical mode. The discoveries unveiled in the new physics, however, have described a view of reality quite similar to the eastern mystic religions of Hinduism, Buddhism, Taoism and Zen (Capra, 1981; Zukav, 1979). The more I learned, the more I began to question the primacy of the methodologies used by rationalistic science to 'discover' reality.

One of the most basic aphorisms of the new physics is that we cannot observe a phenomenon without affecting it in some way. There is, therefore, no objective, 'out-there' reality which may be studied and observed to elucidate the truth. The very act of observing changes the nature of the reality we wish to observe. Ours is truly an interactive universe:

> As we penetrate into matter, nature does not show us any isolated basic building blocks, but rather appears as a complicated web of relations between the various parts of a unified whole. (Capra, 1982:91)
>
> . . . The crucial feature of quantum theory is that the observer is not only necessary to observe the properties of an atomic phenomenon, but is necessary even to bring about these properties. My conscious decision about how to observe, say, an electron will determine the electron's properties to some extent. If I ask it a particle question, it will give me a particle answer; if I ask it a wave question, it will give me a wave answer. The electron does not *have* objective properties independent of my mind. In atomic physics the sharp Cartesian division between mind and matter, between the observer and the observed, can no longer be maintained. We can never speak about nature without, at the same time, speaking about ourselves. (ibid.:86-87)

Granted, extrapolating from the findings of a field like quantum physics to the study of human learning could be considered a major leap. However, as our understanding of the implications of the new physics develops, it may prove to be a valid one. For now, its power lies in the metaphor it provides for viewing the human activity of research. As Erickson suggested, empirical inquiry in the social sciences is analogous to the mechanics of Newtonian physics. In much the same way that our understanding of physics has changed, so too has our model of social research changed: from separate, causal, mechanical *events* to interrelated, unified and dynamic *relationships* between individuals (Capra, 1981). This model obviously demands a much different research orientation, one which allows for the effect of the researcher and her/his interaction with the subject of study.

I began by asking my questions. Basically, I wanted to know why people do or do not take action on environmental issues. Many people have looked at the dynamics of environmental action (see Chapter Two). The majority of these studies, however, have utilized quantitative methodologies: surveys, questionnaires, instruments, etc. These methods are useful for measuring the relationship between specific variables and action. However, as indicated above, the variables associated with certain behaviors reveal only a partial aspect of the question of why people do or do not take action.

In order to answer this question more fully, it is necessary to move beyond the mechanics of action (empirical inquiry) to the meaning. What meanings do people give to environmental action? How do teachers view their role in empowering students to take action on environmental issues? How do students view their ability to take action? What does it mean to a student when she/he takes action? How does the teacher affect the students' action-taking behavior? What reasons do action-takers give for their decision to become active? In essence, I wanted to know why people become active in protecting the environment and how educators can facilitate this process.

In examining these questions, it was clear that some combination of interpretive and critical inquiry would be necessary. The types of questions I had asked required answers that explored the experiences that individuals had in trying to teach, take or promote environmental action. There seemed to be three groups of people that would best be able to answer those questions: teachers, students and environmental activists. In addition, toward the end of the data collection period for these three groups, I became involved with a local environmental group. It seemed, therefore, necessary that I include myself as a subject of research by describing my own experiences of moving from inaction to action. The specific methodologies and procedures I used in this study are detailed in Chapter Three.

A STATEMENT OF POSITION: BIASES AND ASSUMPTIONS

Because qualitative research methods necessarily involve the researcher in the act of inquiry, it is impossible and even undesirable for the researcher to remain objective. The subjectivity of the researcher enters into every aspect of the study. As a consequence, the researcher must make explicit any biases and preconceptions she or he may have. Morrison (1986) cites Giorgi in explaining the need for revealing these biases:

> I delineate and make explicit the intention that guides the elaboration of my data. By means of this procedure I am able to communicate to other researchers the attitude I assume with respect to the descriptions. These clarifications take place for my consciousness as a researcher and are the consequence of deepening the descriptions rather than extrapolating beyond them (Giorgi, 1971:78).

> The control comes from the researcher's context or perspective of the data. Once the context and intention becomes known, the divergence is usually intelligible to all even if not universally agreeable. Thus, the chief point to be remembered with this type of research is not so much whether another position with respect to the data could be adopted (this point is granted beforehand), but whether a reader, adopting the same viewpoint as articulated by the researcher, can also see what the researcher saw, whether or not he agrees with it. (Giorgi, 1971:96)

The most obvious bias I held prior to this study was that environmental action is both desirable and possible. There are many reasons for my belief in this preconception. Some are based on the findings of the sciences; others are based on the implications of the environmental crisis for our society as a whole, as described at the opening of this chapter. For me, the process of coming to this belief in the need for action has been an exercise in critical inquiry. It is founded in critical reflection very similar to that which is described above. In this case, however, I was the subject of reflection.

As mentioned previously, I perceive the current state of environmental degradation to be a crisis of values, not science or technology. The perspective I have come to adopt for guiding my actions in response to this crisis is called deep ecology (Naess, 1973). Sessions and Naess developed the following deep ecology arguments in an attempt to delineate a set of principles that could be used by people of all religions and philosophies :

1. The well-being and flourishing of human and nonhuman Life on Earth have value in themselves (synonyms: intrinsic value, inherent value). These values are independent of the usefulness of the nonhuman world for human purposes.
2. Richness and diversity of life forms contribute to the realization of these values and are also values in themselves.
3. Humans have no right to reduce this richness and diversity except to satisfy *vital* needs.
4. The flourishing of human life and cultures is compatible with a substantial decrease of the human population. The flourishing of nonhuman life requires such a decrease.
5. Present human interference with the nonhuman world is excessive, and the situation is rapidly worsening.
6. Policies must therefore be changed. These policies affect basic economic, technological, and ideological structures. The resulting state of affairs will be deeply different from the present.
7. The ideological change is mainly that of appreciating *life quality* (dwelling in situations of inherent value) rather than adhering to an increasingly higher standard of living. There will be a profound awareness of the difference between big and great.

8. Those who subscribe to the foregoing point have an obligation directly or indirectly to try to implement the necessary changes. (Devall and Sessions, 1985:70)

The reasoning given for the deep ecology position resembles that common to the process of critical reflection. Ultimately, deep ecology argues that human beings must begin to consider the well-being of the Earth if we wish to maintain even minimal *needs*. The conditions conducive to a quality human existence, therefore, must always be determined in reference to the place human occupy in the circle of life on Earth. As Naess states:

> The essence of deep ecology is to ask deeper questions. The adjective 'deep' stresses that we ask why and how, where others do not. . . . For example we need to ask questions like, Why do we think that economic growth and high levels of consumption are so important? The conventional answer would be to point to the economic consequences of not having economic growth. But in deep ecology, we ask whether the present society fulfills basic human needs like love and security and access to nature, and, in so doing, we question our society's underlying assumptions. We ask which society, which education, which form of religion, is beneficial for all life on the planet as a whole, and then we ask further what we need to do in order to make the necessary changes. We are not limited to a scientific approach; we have an obligation to verbalize a total view.
>
> It's easier for deep ecologists than for others because we have certain fundamental values, a fundamental view of what's meaningful in life, what's worth maintaining, which makes it completely clear that we're opposed to further development for the sake of increased domination and an increased standard of living should be drastically reduced and the quality of life, in the sense of basic satisfaction in the depths of one's heart or soul, should be maintained or increased. This view is intuitive, as are all important views, in the sense that it can't be proven. As Aristotle said, it shows a lack of education to try to prove everything, because you have to have a starting point. You can't prove the methodology of science, you can't prove logic, because logic presupposes fundamental premises. (in Devall and Sessions, 1985:74-75)

Deep ecology, then, truly embraces the principles of critical reflection. It may, in fact, prove to be a more encompassing framework in which future critical inquiry will be conducted.

Another preconception I held prior to beginning this study had to do with a model of the factors impinging on a person's decision and ability to take action on environmental issues. The model upon which I based many of my decisions about procedure and method is given in Figure 1. It was derived from the readings I did into the research of environmentally responsible behavior, empowerment theory, and citizenship education (see Chapter Two). This model focused almost exclusively on the relationships between the people involved in the action process. The environment enters into this model only as the object to which such responsible behavior is directed.

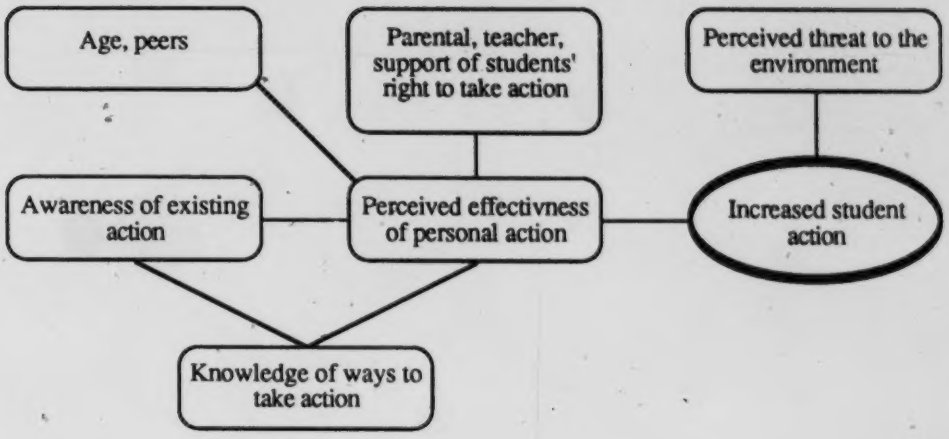
Age, peers
Parental, teacher, support of students' right to take action
Perceived threat to the environment
Awareness of existing action
Perceived effectivness of personal action
Increased student action
Knowledge of ways to take action

Figure 1. Model of the factors affecting environmental action.

Another bias should be noted here. For me, there exists a connection to the Earth that goes beyond my rational understanding of the planet and the relationships that describe the 'environment'. It is a very personal, spiritual (although not necessarily religious), and encompassing sense of my place on this Earth. It is not something which can be analyzed; rather it depends on the 'being-in-nature' which is defined by experience. This feeling goes beyond that of the mere physical senses. It returns to the essence of experience as Heidegger depicted in his book *Being and Time*. Evernden is worth quoting at length in describing Heidegger's work in this area:

> If we could conceive of a 'field of care' or 'field of concern,' we might have a means of gaining partial understanding of Heidegger's description of human being. His term is not 'field,' however; it is '*Dasein*' ('Being—there' in German), and 'the Being of Dasein itself is to be made visible as *care*.' We know a territory by the actions of its occupant; we know *Dasein* by the evidence of care.
>
> One of Heidegger's interpreters, William Barrett, offers an especially useful description of how it is to be such a field of care.
>
> *Now there is nothing at all remote or abstract about this idea of man, or* Dasein, *as a field. It checks with our everyday observation in the case of the child who has just learned to respond to his own name. He comes promptly enough at being called by name; but if asked to point out the person to whom the name belongs, he is just as likely to point to Mommy or Daddy as to himself— to the frustration of both eager parents. Some months later, asked the same question the child will point to himself. But before he has reached that stage, he has heard his name as naming a field or region of Being with which he is concerned, and to which he responds, whether the call is to come to food, to mother, or whatever. And the child is right. His name is not the name of an existence that takes place within the envelope of his skin: that is merely the awfully abstract social convention that has imposed itself not only on his parents but on the history of philosophy. The basic meaning the child's name has for him does not disappear as he grows older; it only becomes covered over by the more abstract social convention. He*

secretly hears his own name called whenever he hears any region of Being named with which he is vitally involved.

> Notice that this is not unlike a suggestion considered earlier, that one does not really experience the boundary of the self as the epidermis of the body, but rather as a gradient of involvement in the world. But instead of considering the extension of the self into the world as akin to the making of a body image or a 'phenomenal body,' here we are talking about a field of concern or care. The child recognizes the primacy of relationship, that its parents are an intimate part of the event that is itself. This may not be altogether unlike the experience of persons who are moved (often to their own surprise) to defend the useless, non-human world around them. Each "secretly hears his own name called whenever he hears any region of Being named with which he is vitally involved." Whether it is the housewife who defies the chainsaws to rescue a tree that is beyond her property yet part of her abode, or the elderly couple who unreasonably resist expropriation of their home, or the young 'eco-freak' fighting to preserve some vibrant, stinking bog, or even the naturalist who fears the extinction of a creature he has never seen, the phenomenon is similar: each has heard his own name called, and reacts to the spectre of impending non-being. (1985:63-64)

When I began this thesis, this feeling was inarticulate; it dwelled entirely within the place of experience, 'covered over by the more abstract social convention' (specifically that of my scientific training). As such, its effects upon my day-to-day existence were erratic and depended almost entirely upon exposure to a natural environment. During the course of researching this thesis, I have begun to explore this feeling, not in terms of analyzing its meaning, but to understand its essence and the lessons it has to teach me about living lightly upon this Earth. As my understanding has grown, so too has that sense of connection. I now experience the connection regardless of my physical setting.

In some ways, writing this thesis has been a spiritual journey. Yet it is quite unlike anything I experienced when I became involved with Christianity during my late teens. In looking back, I think the difference lies in the genesis of the decision to explore a particular path. With Christianity, the experiences I now interpret as spiritual came only after being told how and what I should feel by the people of the church. With this new connection, I started with the experience, my experience, the experience which I owned in my heart. Then I began to search for a tradition which spoke to that experience. For me, this tradition lies in the teachings of the Native North American spirituality. In a sense, I always knew this would be a place to which I would come, eventually. It is my heritage, not only as a North American[*], but also as a person of Native

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[*] In his book, *Indian Medicine Power*, Brad Steiger writes:

> Carl Jung once warned Westerners that they should be cautious of an extended practice of

continued...

ancestry. But it is not the only path. The only requirement in this type of search is that the person begin with the experience.

I include this bias here for two reasons. First, it contradicts the model described above depicting the factors impinging on environmental action. It suggests that an experiential connection to the Earth is as important, if not more so, to environmental action as believing that your actions can have an impact. This is a theme I must attend to during the course of interpreting the data I have gathered. Second, it is an essential part of my experience of coming to action. For me, it has provided the driving force to take action *and* the source of strength to continue.

Finally, I must define several terms that are used throughout the thesis. The first term is 'environment'. Scientifically, the environment can be defined as "the aggregate to external conditions that influence the life of an individual organism or population" (Miller, 1985:A35). These conditions include both living and non-living factors. While man-made sturctures would technically fall within this definition, I limit 'environment' to the natural world, including human-modified places such as farms and parks.

The second term that should be defined is 'environmental education'. A summary of the definition process is given in Chapter Two. My definition derives from the work in this thesis. It is not so much a new definition, as a different emphasis. I define environmental education more in terms of the values and attitudes associated with educating for the Earth. In my definition, these aspects are primary rather than secondary features of environmental education.

The last term I should define is 'environmental action'. I use this term to describe any behavior which tends to increase the conservation, preservation, and restoration of the Earth's natural

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yoga, as it was not a metaphysical practice of the soil on which they had been reared. Although there are basic spiritual insights which are universal, there may be unique modes of attaining extended awareness, illumination, and cosmic consciousness that have been given to certain peoples and places to more effectively achieve communion with the Great Spirit within the confines or cosmically determined borders. If this is true, then the American Indian vision quest, during which the seeker goes into the wilderness alone to fast, to receive a spirit guide and a secret name, not only provides us with a prototype of the revelatory experience and the means of obtaining medicine power, but it may provide us with the peculiar mystical experience that is most efficacious for our hemisphere. (1984:25)

systems and resources. Such actions can be as small and private as re-using a plastic bag. Or they can be on a grander scale, such as political lobbying or demonstrations. 'Environmental action' is used interchangeably with 'environmentally responsible behavior'.

A FINAL NOTE

At this point I would like to promise the reader that this will be the end of the 'doom and gloom.' We all know or have access to knowledge of the current state of the environment. I will make no attempt here to justify the need for changes. I do this for two reasons: 1) I believe that the evidence that exists with respect to the degradation of the environment is more than adequate to arouse alarm and concern; and 2) I have found, from my own experience and the results of this project, that a constant barrage of negativity and ominous predictions can suppress the desire to take action with a fatalistic, *fait accompli* attitude.

This is a work of hope. I hope for a future in which our children and their children and their children's children can know what it is to walk in an old growth forest and be with the trees and the smell of the warm, moist, spongy carpet laid beneath them. I hope that they can know the beauty of a desert sunset and power of a thunderstorm passing over them as they huddle beneath an outcrop of sandstone and the smell of sage in the wet air after the storm passes. I hope that they can know and respect their homes and their heat and their food and their clothing because these things come from the earth willingly and renewably. And I hope that they will know a world in which conflicts between countries reinforces their respect for our ability to find creative, benign solutions to difficult problems.

It is also a work of trust. I am trusting that those who read this will find the courage to begin acting, in whatever ways they can, on the suggestions I make. I am trusting that human beings can have a viable global future that acknowledges and enhances the life of the planet. And I am trusting that the changes that **are** occurring in our world right now can bring about that viable global future in the least destructive way.

We shall not cease from exploration

And the end of all our exploring

Will be to arrive where we started

And know the place for the first time.

—*T. S. Elliot,* Little Gidding

Environmental education draws from rich and varied sources in its effort to teach us about the Earth on which we live and our relationship to it. It is essential that we understand those sources if we are to appreciate the immensity of the problems associated with producing a coherent and functional environmental education theory. Never before has one field of education proved so encompassing and yet so difficult to implement. By examining the reasons for this problem, we may find the seeds of its solution. This chapter, then, explores the history and development of environmental education, all the while looking for those seeds.

THE HISTORICAL ROOTS OF ENVIRONMENTAL EDUCATION

Although environmental education, per se, is a relatively recent phenomenon in North America, it is based on a conservation movement which is well over a century old. Most historians trace the beginning of this movement to the book *Man and Nature* by George Perkins Marsh, published in 1864. This book appears to be one of the first attempts to address the unrestricted resource use that had characterized the expanding development of the North American continent. Many other writers and naturalists contributed to the conservation movement over the next few decades. There are, however, three people who characterize the development of the movement: Gifford Pinchot, George Bird Grinnell, and John Muir (Fox, 1984).

Gifford Pinchot epitomized the utilitarian approach to conservation. He believed that resources were for human use and that conservation consisted of a wise use policy that would maximize the output of a resource for the longest period of time. "The emphasis was on rational planning for efficient development and use." (Fox, 1984:22) This philosophy of human-centered conservation is characteristic of the general governmental approach to environmental resources.

On the surface, many of George Bird Grinnell's beliefs about conservation appear to coincide with those of Pinchot's. He was an avid sportsman and explorer. He based many of his arguments for conservation on economic considerations. But he was a naturalist and his reasoning about the need to conserve nature reflected this. He realized that western society operates in an imperfect system that relies heavily on economic return to confer value on most resources. Although he felt natural resources were inherently valuable, he often justified their preservation with economic reasons (Mitchell, 1987).

John Muir was the most moralistic of the three founders of the conservation movement. A deeply religious (although not necessarily Christian) man, he strongly pursued the development of a public attitude that recognized the intrinsic value of natural environments. As Muir wrote, "Thousands of tired, nerve-shaken, over-civilized people are beginning to find out that going to the mountains is going home; that wilderness is a necessity; and that mountain parks and reservations are useful not only as fountains of timber and irrigating rivers, but as fountains of life" (Muir, 1971:32).

All three of these men were contemporaries, and they each had an important influence on the governmental policies that were being developed at the time. Pinchot strongly influenced the United States Forest Service; Grinnell was very close to Theodore Roosevelt and had a great deal of input to his policy of park development; and Muir's philosophy is clearly reflected in the National Park Service's biocentric approach to conservation. But, as Fox (1984) suggests, the major trend in *public* attitude and awareness has been to move from Pinchot's point of view to Grinnell's and then to Muir's.

This progression also reflects the course of environmental education. Although the three

founders of the conservation movement were not formally involved in education, their philosophies serve as the rationale for the three primary focuses that arose during the early part of this century: conservation education (Pinchot), outdoor education (Grinnell) and nature study (Muir).

Swan (1975) cites the following quote from the 1935 National Educational Association's Educational Policies Commission as descriptive of conservation education:

> . . . Forests, soils, grasslands, water, minerals, oils, fish, game, and scenic beauty are among the rich natural endowments of the area of the North American continent covered by the United States. Realization of the basic importance of the resources, ***determination to utilized them for the common good through long range planning***, and general knowledge of appropriate remedial and preventative conservation procedures are among the marks of an educated citizen. Since future welfare and safety depend on those things, the schools may well assume considerable responsibility for checking on the ravages upon the heritage of the nation made by ignorance, indifference, carelessness, and unbridled selfishness. (italics added)

Conservation education has relied heavily on the findings of scientific research to legitimate the directions taken in conservation effort. Rationality and efficiency have been the primary concerns. Programs focused on "understanding more fully the characteristics, distribution, status, uses, problems, and policies regarding natural resources" (Stapp, 1974:46).

Outdoor education, which first appeared in the 1920s, focuses on the skills associated with outdoor experiences (canoeing, hunting, camping, etc.). It differs to some degree from the other two disciplines in that it is actually an approach that may be used in either conservation education or nature study (Swan, 1975). Since outdoor education stresses only the experiential aspects of relating to the environment, it can be distinguished from conservation education. Its emphasis on the wise use of resources for human recreation distinguishes outdoor education from nature study.

Nature study actually began earlier than conservation and outdoor education in North America. In 1908, L. B. Hyde Bailey founded the American Nature Study Society. Its purposes today are:

1) to help develop appreciation and understanding of nature through first-hand experience out of doors;

2) to support the conservation of natural areas, and encourage their use in nature education;

3) to improve the quality of nature interpretation in schools, parks, literature, and nature organizations. (Stapp, 1974:44)

The emphasis seems to be on encouraging a personal relationship with nature that may help guide the students' future actions. In most cases, it appears that nature study programs spend relatively

little time on the "facts and figures" of the natural environment and more time on experiential encounters.

In a sense, these three approaches represented the cognition-psychomotor-affect triad for what was to become environmental education. Conservation education stressed the knowledge needed to properly preserve the environment; outdoor education developed the skills needed to experience and attend to the environment; and nature study provided the experiences that would lead to an appreciation and respect for the environment. For the most part, however, these were competing approaches. It wasn't until the mid-1960s, however, that environmental education began to develop as a distinct field of study. In large part, this was due to a growing public awareness of the deteriorating state of the natural environment. As their involvement increased, educators began to realize that the fragmented approach represented by conservation education/outdoor education/nature study could not bring about the changes in beliefs, values, and actions that were needed to deal with the environmental issues facing society.

DEFINING ENVIRONMENTAL EDUCATION

An immense amount of material was generated in the early 1970s following the passing of the United States Environmental Education Act in August of 1970. During this time, a process of definition occurred. Governmental agencies, private industry, teachers organizations, universities, and publishing companies all produced curriculum materials dealing with environmental education. As with any new development in education, there were conflicting views about the definition, purpose, goals, methods, and direction of environmental education.

This development did a great deal to help define the field. These definitions had commonalties, but they also exhibited conflicting ideas. The United Nations Educational, Scientific and Cultural Organization (UNESCO, 1983) compiled the following list of representative definitions that have been used:

> Constructive attitudes toward the environment, in both the philosophical and programmatical senses, have not yet become and ingredient in everybody's thinking and acting. This remains the basic objective of environmental education. (Final report: Inter-governmental Conference

of Experts on the Scientific Basis for the Rational Use and Conservation of the Resources of the Biosphere, 1968.)

The educational process dealing with man's relationship with his natural and man-made surroundings and including the relation of population, pollution, resources allocation and depletion, conservation, transportation, technology, and urban and rural planning to the total human environment. (In United States Public Law 91-516, The Environmental Education Act.)

Environmental education involves teaching about value judgements and the ability to think clearly about complex problems--about the environment--which are as political economical, and philosophical as they are technical. (Proceedings of the Organization of American States Conference on Education and the Environment in the Americas, 1971.)

Environmental education is a way of implementing the goals of environmental protection. Environmental education is not a separate branch of science or subject to study. It should be carried out according to the principle of life-long integral education. (Proposed by the Seminar on Environmental Education, organized by the Finnish National Commission for UNESCO at Jammi, 1974.)

Environmental education and the exercise of citizenship go hand in hand; the opening up of opportunities for public participation in decision-making is the most important of all means to environmental education, which should aim at developing a critical, moral and aesthetic awareness of our surroundings. (Quoted in "The Genesis of Environmental Education" by K. Wheeler in "Insights into Environmental Education" edited by G. C. Martin and K. Wheeler, Oliver and Boyd, 1975.)

The aim of environmental education is to develop a world population that is aware of, and concerned about the environment and its associated problems, and which has the knowledge, skills, attitudes, motivations and commitment to work individually and collectively toward solutions of current problems and prevention of new ones. (as stated in P. J. Fensham "A Report on the Belgrade Conference on Environmental Education" (Canberra, 1976) p. 25.)

Environmental Education is no more and no less than 'citizenship education', the development of personal commitment and social responsibility combined with a systems-centered holistic view of man in relation to nature, tied to a fundamental faith in the institutions of man and his abilities. Citizenship also means political obligation: a readiness to participate in the shaping of the community; and ability to assess, to assimilate, and where necessary challenge public policy; and a willingness to serve in the interests of others. (T. O'Riordan, Environmentalism, Pion, Ltd., London, 1976:15.)

The similarities among these definitions are obvious. As UNESCO suggests, they all seem to emphasize the following points:

- Recognition of the inter-relatedness of mankind and the bio-physical support systems in which human life occurs.
- A priority for learning values and attitudes as well as for learning more customary conceptual knowledge.
- A deliberate attempt to develop skills for real situations.
- A relationship between education and codes of personal social behavior.(1983:28)

These definitions hold several implications for environmental education. First, environmental education is an interdisciplinary subject. In order to fully explore a particular environmental

problem, it is necessary to use several areas of study. For instance, a science teacher may discover that he/she needs to examine the sociological basis of a particular problem in order for the students to gain a full understanding of the issue. Conversely, a social studies teacher will generally need to refer to ecological information when discussing the ramifications of societal actions. In this way, environmental education can become an overriding theme for many, if not all, subject areas.

The second implication of the definition lies in the broad theoretical base from which environmental education derives. The three historical disciplines (conservation education, outdoor education, nature study) have provided a framework for the standard curriculum development, but environmental education is more than a combination of these three forerunners. As Alf (1981) suggests, the fields of psychology, sociology, politics, and ethics are also important in solving environmental problems and should be included. This suggestion implies that a holistic approach must be utilized if environmental education is to succeed.

One of the most synthetic and comprehensive treatments of the goals and characteristics of environmental education was given in the UNESCO publication, Environmental Education in the Light of the Tbilisi Conference. This book was based on the findings of the first Intergovernmental Conference on Environmental Education held in Tbilisi (Georgian SSR, USSR) in October of 1977. Many of the current environmental education policies used in schools today are based on the results of this conference. UNESCO gave the following primary goals of environmental education:

1. to foster clear awareness of, and concern about, economic, social, political, and ecological interdependence in urban and rural areas;
2. to provide every person with opportunities to acquire the knowledge, values, attitudes, commitment and skills needed to protect and improve the environment;
3. to create new patterns of behavior of individuals, groups and society as a whole towards the environment. (1980:71)

UNESCO emphasized that the "achievement of such ultimate aims presupposes an education dispensing knowledge and methods and imparting attitudes and values which will contribute to understanding and solving environmental problems" (1980:24). They also believed that changes in behavior, with respect to the environment, would only come about when "a majority of the

members of a particular society have adopted more positive values" (ibid.:24). They stressed that environmental education should not be regarded as a new discipline to be added to existing subjects. Rather, it must "promote new basic knowledge and new approaches within the framework of an overall educational policy that stresses the social role of educational institutions and the need to create new relationships among all the participants in the educational process" (ibid.:25). With these ideas in mind, UNESCO proposed the following characteristics of environmental education.

> **Problem-solving approach**
> An environmental education program must make people aware of the environmental problems that exist and develop their abilities to analyze the issues, evaluate the possible solutions, decide on an action to take and implement that action. In solving environmental problems, it is essential that the student examine the economic, social, political, technological and ecological implications of the decisions they make.
>
> **An interdisciplinary educational approach**
> An environmental education program must attempt to bridge the gaps between the various educational disciplines and present a wholistic, comprehensive approach to environmental issues. It involves examining the issue in its entirety and then looking at the interactions between the social, ecological, economic and political factors acting on the problem.
>
> **Integration of education into the community**
> Because most environmental problems are real-life situations and not merely classroom examples, it is necessary that environmental education programs be integrated with the community in an effort to encourage real-life action. Schools should be located within communities both physically and symbolically. They should become community resource centers as well as learning centers. This will enable students to act more easily on the information they discover.
>
> **A lifelong, forward-looking education**
> The rate at which changes in the human environment occur today necessitates an educational program that equips people with the ability to extend their personal learning on an independent basis. It must teach people how to learn, how to analyze problems, and gather information so they can use these skills after leaving the formal school system. (1980:70)

Finally, the conference recommended the following broad categories for the development of environmental education objectives:

> **Awareness:** to help social groups and individuals acquire an awareness of an sensitivity to the total environment and its allied problems.
>
> **Knowledge:** to help social groups and individuals gain a variety of experience in, and acquire a basic knowledge of the environment and its associated problems.
>
> **Attitudes:** to help social groups and individuals acquire a set of values and feelings of concern for the environment, and the motivation for actively participating in environmental improvement and protection.

Skills: to help social groups and individuals acquire the skills for identifying and solving environmental problems.

Participation: to provide social groups and individuals with an opportunity to be actively involved at all levels in working toward resolution of environmental problems. (1980:71)

Because environmental education should take an interdisciplinary approach, it is not feasible to design an environmental education curriculum, per se. Programs must focus on the skills and methods that best enhance an understanding of our place in and influence on the environment. It is helpful, however, to group the major concerns of environmental education into areas that can be drawn upon in selecting educational activities. VandeVisse and Stapp (1975) suggest the following categories:

1. Closed System [energy flow and transfer]
2. Ecosystems
3. Human Ecosystems
4. Land Ethic
5. Populations
6. Environmental Contamination
7. Environmental Quality [optimum human environment]
8. Environmental Decisions

These categories outline the information and skills needed to evaluate an environmental issue. They also provide the student and teacher with a philosophical foundation upon which to build a knowledge base. Only by including consideration of the values consistent with an environmentally responsible citizenry can environmental education attempt to consolidate its diverse background and future goals.

The goals and characteristics given in the UNESCO proposal and by VandeVisse and Stapp emphasize an important point about environmental education: it means little if the students don't begin to act in environmentally responsible ways. Action is an integral component of any environmental education program; yet, students seldom follow through to the action level. There are several possible reasons for this situation. First, taking action on an issue (ie., "What can I

do?") requires skills to which students are seldom exposed and commitment for which they are seldom prepared. Second, the nature of environmentally responsible behavior and its implications are rarely discussed explicitly. Finally, the values and beliefs associated with such behavior often oppose societal (parental) norms. In order to appreciate the difficulties inherent in overcoming this situation, it is necessary to examine the human behaviors and values that are consistent with a healthy environment.

ENVIRONMENTAL VALUES AND BEHAVIORS

When discussing behaviors that lead to a healthy environment, an assumption must be made: the current practices characteristic of Western industrialized society are inherently destructive to the environment. There is some disagreement about the validity of this assumption, chiefly from economists (see Kahn, Brown, and Martel, 1976; Simon, 1981; Walter 1981). I believe, however, that the arguments supporting this assumption are very convincing both scientifically and philosophically (although a complete description of the debate will not be given here).

Many authors have described the dichotomy between the current values held by our society and those of a more environmentally responsible society. Dunlap and Van Liere (1978) characterize these positions as paradigms or world views they call the Dominant Social Paradigm (DSP) and the New Environmental Paradigm (NEP). As such, these paradigms represent a cohesive set of values, beliefs and attitudes that guide not only how individuals view the world in which they live, but also they ways in which they will behave. Miller (1985) provides a good summary of the beliefs associated with each side:

Dominant Social Paradigm

1. Humans are the source of all value (anthropocentrism).
2. Nature exists only for our use.
3. Our primary purpose is to produce and consume material goods. Success is based on material wealth.
4. Matter and energy resources are unlimited because of human ingenuity in making them available.

5. Production and consumption of goods must rise endlessly because we have a right to an ever increasing material standard of living.

6. We need not adapt ourselves to the natural environment because we can remake it to suit our own needs by means of science and technology.

7. A major function of the state is to help individuals and corporations exploit the environment to increase wealth and power. The most important nation-state is the one that can command and use the largest fraction of the world's resources.

8. The ideal person is the self-made individualist who does his or her own thing and hurts no one.

New Environmental Paradigm

1. Humans are not the source of all value.

2. Nature does not exist primarily for human use but for all living species. In the words of Aldo Leopold, each of us is "to be a plain member and citizen of nature."

3. Our primary purposes should be to share and care for all humans and to recognize the right of all species to live without interference or control by humans. Success is based on the degree to which we achieve these goals.

4. Matter and energy resources are finite and must not be wasted. As Arthur Purcell puts it: "A conservation ethic means simply a desire to get the most out of what people use, and a recognition that the wasteful use of precious resources is harmful and detrimental to the quality of everyone's life."

5. Production and consumption of material goods need not increase endlessly—no individual, corporation, or nation has a right to an ever-increasing share of the earth's finite resources. "There is enough for everybody's need but not enough for anybody's greed" (M. K. Gandhi).

6. As part of nature, humans should work with—not against—nature. In the words of Aldo Leopold, "A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise."

7. Major functions of the state are to supervise long-range planning, to prevent individuals and corporations from exploiting and damaging the environment, and to preserve human freedom and dignity.

8. We can never completely "do our own thing" without exerting some effect now or in the future on other human beings and on other living species. All past, present, and future actions have effects, most of which are unpredictable. (1985:453-454)

It is particularly helpful to look at these alternate world views as paradigms when attempting to understand the dynamics of change from one to another. A paradigm shift occurs when a sufficient number of anomalies accumulate which the current paradigm can no longer explain or accommodate (Kuhn, 1970). These anomalies shake the foundations of the dominant paradigm such that a

change is imperative. Once this need for change is realized, a process of discovery occurs. New ideas are tried; alternate conceptions are applied. Through this process, a new paradigm develops that helps explain the different conception of reality that has arisen. As Capra (1982) suggests, we appear to be in the state of flux generated by anomalous observations (ie., environmental degradation due to current practices). The paradigm that seems to be developing and gaining acceptance is the New Environmental Paradigm.

The values associated with such a paradigm are, in many ways, the antithesis of the current world view. They may seem similar due to the fact that our society pays a 'lip-service' to some of the NEP values. In reality, though, most of the NEP values are 'over-ridden' by the aggressive and competitive nature of the DSP. Milbrath (1984) describes this difference in terms of the modifiers that affect the way in which we express the central, innate value all organisms place on their own lives (Figure 2). Since our society (Society A, DSP) emphasizes aggression and competition, we typify the unsustainable society in which selfishness is directed inwardly. When combined with our unique abilities to alter the environment in drastic and often irreparable ways, we find ourselves in a positive feedback system that can only lead to destruction of the world in which we live. The alternative of a sustainable society (Society B, NEP) provides a value system that modifies the innate selfishness present in our species.

Obviously, the values described in this section present many problems when brought into the classroom. These problems, however, are not restricted to this particular set of values. Anytime a decision is made in a school, a certain set of values are being promoted and others denied. For instance, Baer (1985) argues:

> Is it religiously neutral not to have spoken prayers before lunch in school cafeteria or at a more formal school banquet? Clearly it is not. The food is either blessed or not blessed, God is either thanked or not thanked. No strictly neutral position is possible. To say that Christian, Jewish, or Muslim students should pray silently if they want to makes no more sense than to say that atheist students should try not to hear what is being said in a spoken prayer or should pay no attention to it. (p. 37)

Traditionally, there are two responses to the problem of values education. The first is to establish alternative schools which openly promote the value systems the parents espouse. Baer

suggests the solution to this problem in the public sphere is to initiate a tuition voucher system

The figure in this position was removed due to the unavailability of copyright permission.

The figure gave a graphic representation of the discussion in the immediately preceding paragraph.

The figure was taken from page 16 of:
Milbrath, L. W., 1984, "A Proposed Value Structure for a Sustainable Society", The Environmentalist 4:113-124.

Figure 2. Biological value modifiers shaping societal direction.*

whereby parents are issued vouchers that allow them to select desirable schools, regardless of their financial status. He readily admits that this system is based on two assumptions:

1) Children are not capable of making all or even most of the basic decisions that pertain to their own education; and

2) These decisions, particularly when they pertain to religion and basic values, ought to reside with the children's parents rather than with the state. (p. 36)

Unfortunately, he fails to address the problem of environmentally destructive parental values. The decision about the ultimate morality or immorality of a particular value is left with people who may be little more developed, morally, than their children.

The other traditional approach involves incorporating various valuing strategies into the daily educational activities of the school. Caduto (1983) describes the major strategies used in values education today:

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* From Milbrath, L. W., 1984, "A Proposed Value Structure for a Sustainable Society", The Environmentalist, 4:113—124.

- laissez faire: "The laissez faire approach in EVE [environmental values education] is often linked with a faith that increased knowledge alone about the environment will eventually surface as a strong set of environmental values." (p. 14)

- moral development: "The philosophy of moral development states that the moral growth of an individual occurs in progressive stages. Learners are to be aided in this process by being exposed to moral conflict situations and to other individuals who are functioning at a higher level of moral reasoning." (p. 14)

- inculcation: "The purpose of inculcating values is to instill in learners certain chosen values or to shift learner values towards those desired ends. Values inculcation exercises center on a few major methodologies: moralizing, modeling, positive and negative reinforcement, and role playing." (p. 15)

- values analysis: "Values analysis applies the scientific, logical thinking of the Socratic method of investigation to the study of values. Its main objective is to help learners apply this form of investigation to values exploration and decision making in their own lives." (p. 16)

- values clarification: "Like values analysis, values clarification emphasizes the process of valuing, not the values themselves. This process consists of three steps — choosing, prizing, and acting. . . . Judgement is to be avoided." (pp.16,17)

- action learning (service learning): "This theory is based on the socio-psychological theories that go beyond thinking and feeling to action. Action learning exercises encourage teachers to take learners out into the community to learn from real-life experiences." (p.18)

- confluent education: "This strategy states that both cognitive and affective education are inseparable in individual and group learning. . . . The methods of confluent education include exercises that link the learner's thinking, feeling, and valuing." (p. 18, 19)

- behavior modification: "behavior is determined by external reinforcements, which can be either positive (reward) or negative (punishment). This theory assumes that attitudinal and valuational changes follow changes in behavior." (p. 19)

This approach differs from that described by Baer in that the school attempts to present a balanced (or at least non-controversial) mix of value systems based, for the most part, on the mores of the surrounding community of parents. Conflicts between differing value systems are usually dealt with under the watchful eye of *reason*, as in values clarification (by far the most widely used strategy in environmental values education). As Caduto states: "It is important for the teacher to strike a balance between his or her own sense of responsibility in EVE [Environmental Values Education] and how much freedom he or she has in carrying out those responsibilities within the constraints of institutional policies and community expectations" (1985:33).

As Ornstein and Ehrlich point out, we are "faced with a chicken-or-egg problem":

> The key to getting curriculum changed seems to be changing the minds of adults, and the key to getting new-minded adults seems to be training them early. Clearly one can't be done without

the other, which means that both must be attempts at once. (1989:201)

It may not be possible to accomplish the goal of Environmental Values Education within the present system. A laissez faire approach such as Baer's, however, fails to address the true need for change in our society. New, creative approaches to the handling of values education in school settings are needed; ones which actively involve parents in the process of learning and valuing, *within the public school system.*

EFFECTS OF TYPICAL APPROACHES TO ENVIRONMENTAL EDUCATION

Many educators have struggled to adapt both traditional and non-traditional teaching methods to the goals of environmental education. These attempts have met with varying degrees of success. The methodologies that have been used are moderately effective in transmitting knowledge and in affecting the attitudes of the students toward the environment. They have, however, generally failed to effect changes in the students' behaviors. The nature of environmental education clearly makes this change in behavior one of the criteria by which the success of such a program should be judged. A new approach is needed if environmental education is to accomplish its goals.

Traditionally, environmental education has taken a content approach (Roth & Helgeson, 1972; Childress, 1978; Iozzi, 1981, 1984). The curricula tend to focus on two aspects. First, they attempt to provide the background information concerning the ecological, economic, and political interactions that occur in our world. These are presented in a content format and therefore constitute learning in the knowledge realm. Second, these curricula present information (data, facts, etc.) about current environmental issues and problems. Again, this occurs primarily as a transfer of knowledge. Such an approach generally uses methodologies such as lab investigations of certain ecological phenomena, experiments dealing with the effects of pollution on ecosystems, projects demonstrating alternative energy forms, etc. These activities can be a very important part of an environmental education program; but, if the only exposure students receive is through such methods, the interdisciplinary benefits of environmental education are circumvented. Unfortunately, the only way many students experience environmental education is through a

content approach.

One of the primary problems with such an approach is the lack of reference to the values inherent in environmental issues. While the students may receive accurate information about the problems, this does not necessarily lead them to examine their values, much less change their attitudes. Iverson (1975) found that students who were more knowledgeable about environmental problems were not significantly more concerned than the average student. As Alvord (1972) suggests, students cannot be expected to develop new environmental attitudes as a result of content teaching. It is possible, however, to alter student concerns by teaching for the attitudes and values involved in environmental issues (Quinn, 1976).

One of the most effective and widely used methods of encouraging attitude changes in students is the use of outdoor environmental encounters (Collins et al, 1978). Field trips, overnight excursions, and week-long outdoor camps all seem to have a positive effect on the students' attitudes towards the environment. In a national survey, Childress (1978) found the majority of the public school curricula in environmental education included outdoor encounters of some type. He also found that appreciation of environmental resources was one of the primary objectives of most environmental education programs. While there can be many positive outcomes with this approach, it generally does not provide the student with the skills needed to act on the knowledge and appreciation he/she has developed.

Occasionally, environmental education programs will take an issues approach to environmental problems. By examining the various arguments surrounding such issues, the students are given the tools necessary to evaluate and make decisions regarding those problems. They are encouraged to objectively assess as many sides of an issue as possible, as well as the possible ramifications, before making decisions. In this approach, there is often less emphasis placed on the values and more on the feasibility of the various outcomes. Although such approaches provide more of an opportunity for discussing attitudes and values than an information approach, a study by Hickman (1982) suggests that teachers seldom include this aspect when treating controversial issues in high school biology classes.

Even if attitudes and values can be modified, as Quinn suggests, there appears to be little assurance that they will promote student action. In a review of the research concerning the attitude-behavior connection, Schuman and Johnson (1976) found that, while the majority of the studies they examined indicate there is a relationship between attitudes and behavior, the relationship is not direct. Attitudinal responses cannot "serve as mechanical substitutes for behavioral measures"f (p. 199). Thus, although attitude change is an important step in promoting environmental activism, education programs must go further.

Erhlich (1969) suggests attitudes influence behavior through a number of intervening variables. He lists these as:

1. **clarity:** a clear way for an attitude to be expressed in behavior must exist,
2. **expressibility:** some attitudes may only have their expression in verbal behavior or fantasy,
3. **disclosure:** a person must be willing to disclose his/her attitude,
4. **perspective and the definition of the act:** an act consistent with a person's attitudes may appear to the observer to be inconsistent,
5. **learning:** the person may be learning how to behave in a manner consistent with his/her attitudes,
6. **accessibility:** the person expressing an attitude may have little or no perceived access to enacting that attitude,
7. **competence:** individuals differ in the competence with which they can act on their expressed attitudes.

The majority of these variables suggest that people may need help or training in expressing their attitudes and tendencies as behaviors. Environmental education programs and teaching strategies designed to promote the expression of behaviors consistent with environmentally aware attitudes could be one way to increase active citizenship with respect to environmental problems.

ENVIRONMENTAL ACTION SKILLS: TEACHING FOR ACTIVE CITIZENSHIP

Environmental action skills are an essential ingredient in promoting environmentally responsible behavior because they provide the student with the tools necessary for him/her to translate attitudes and opinions into action. Environmental action skills have received little attention in the literature

(Iozzi, 1984). One reason for this may be the difficulty of assessing environmentally responsible behavior. Most studies tend to focus on obvious, overt, public behavior such as litter habits and transit system use. It is possible, although more difficult, to assess less obvious behaviors. For example, Ramsey, Hungerford, and Tomera (1981) used student self-reporting questionnaires and parental questionnaires to assess the effects of an action-oriented curriculum on eighth grade students. Multiple instruments like this increase the validity of the findings.

Another reason action strategies have received little attention is due to the 'academic fallacy': the idea that a person must have all of the information available about a problem before a viable solution can be derived (Kochan & Allen, 1981). Most environmental education programs have tended to focus on the knowledge component rather than the skills needed by the student. As the authors suggest, "we tend to let *knowing-what* overwhelm *knowing-how*".

Several studies have demonstrated important increases in student activism when action skills are stressed. Ramsey, Hungerford, and Tomera (1981) found that eighth grade students who were given a unit on environmental action skills demonstrated more conservation behavior than those who received only normal science instruction (although that behavior decreased almost 50% after the unit). Asch and Shore (1975) also found increases in environmentally conscious behavior after fifth grade boys were exposed to an environmental action-oriented program.

Based on his review of the literature, Iozzi (1984) suggests the following components of a curriculum designed to promote student action:

Knowledge of:

1) environmental issues
2) ecological consequences of human behaviors
3) environmentally sound alternatives
4) environmental action strategies

Skills in:

1) clarifying values
2) investigating issues

3) environmental problem-solving

4) application of action strategies to real issues (p. 122).

Hungerford, et al (1985) have done the most complete job of translating these components into an educational program. In their text, Investigating and Evaluating Environmental Issues and Action Skills Development Modules, they provide a comprehensive program with suggestions for how students can act on their concerns and interests using four main types of action: persuasion, consumerism, political action, and eco-management. They have provided an excellent system for introducing students to the steps involved in taking action on an environmental problem. However, they base their analyses of issues on a flawed perception of the place of values in environmental problems. They suggest that the role values play in environmental problems rests in the *differences* between people's values. If there were no differences, there would be no environmental problems. In an earlier work which served as a basis for the modules, Hungerford and Peyton give the following example:

> If all human beings agreed that whales should and could be hunted regardless of species survival OR if all agreed that whale harvests should be suspended indefinitely, there would be NO environmental problem associated with whales at all. It is the value disparity across human desires that creates the situation that allows us to point to decisions regarding the management of the great whales as, totally, an environmental problem. And, of course, this is NOT science—and, therefore, not ecology. (1976:3)

Later, in the teacher's manual of their first set of modules, Hungerford et al. make the following statements:

> It is very necessary for students to begin perceiving what a human value is. It may be difficult because many students will be of the opinion that a value position is either totally right or wrong. . . . The correct concept for students to have is that differing values may exist concerning an issue and that because of this, environmental problems exist.

Certainly, human values affect environmental problems. But they affect them in that we perceive certain trade-offs to be acceptable in light of the benefits received. If we behave in destructive ways, the environmental problems exist regardless of whether or not we perceive them to be problems. The ecosystems of the world that sustain life on this planet **are** affected by our actions. If we were to continue to destroy the rainforests and pollute the air and exterminate species, there could come a day when the Earth is altered to such an extent that human beings are no

long able to survive. The values that are important to consider are those that are dictated by the Earth. As a Western industrialized culture, those values are revealed through the sciences. Other cultures, such aboriginal peoples, have come to similar understandings of the values of the Earth through alternative ways of knowing. The end result is the same.

In addition to this major conceptual flaw, the program has several other logistical weaknesses. It requires a significant amount of time to complete (up to a term for the lower grade levels). Hungerford, et al. also attempted to make the program appropriate for a wide age range, thus creating language too simple for the older students. As a result, these older students may not take the program seriously. Many teachers have barely enough time to complete the 'required' curriculum so the 'add-on' aspect of this program could prove its undoing.

The attitudes teachers tend to exhibit toward environmental education in general and action approaches in particular reflect their concern for the importance of the area for teaching. But teachers also express feelings of incompetence in dealing with such issues. Champeau, Gross, & Wilke (1980) found that teachers generally understood the goals of environmental education but felt they needed assistance in helping their students achieve those goals. The teachers indicated that workshops in teaching environmental education courses would be most helpful. Peyton (1978) found similar reactions in his work on teachers' attitudes toward environmental action strategies.

Environmental action skills are certainly important in environmental education, but experience tells us that they may not be the answer. I know how to write letters to governmental officials, investigate the issues surrounding a problem, and boycott environmentally detrimental products. And yet, I very seldom follow through with any of these strategies.

A study by Hines (1984) may give some clues to the reason for this discrepancy. Her meta-analysis of the research of environmentally supportive behavior shows that a wide variety of variables can be associated with such behavior. These variables, in order of importance, are:

1. **verbal commitment:** people who said they acted in a responsible manner generally did so more often than those who didn't (r=0.491).
2. **locus of control:** people who felt they had individual control over the situation (internal locus of control) generally were more environmentally responsible than those who felt the

control rested with someone else (external locus of control) (r=0.379).

3. **efficacy perception:** people who felt their actions were significant and effective were more active than those who felt ineffective (r=0.355).

4. **attitudes:** those with positive attitudes towards the environment and environmental problems were more active than those with negative or neutral attitudes (r=0.347).

5. **personal responsibility:** those who felt they were personally responsible for the environmental situation were more active than those who felt no responsibility (r=0.328).

6. **knowledge:** those who were more knowledgeable about an issue were more likely to take action than those who were not (r=0.299).

These findings provide possible directions in attempting to increase student participation in environmentally responsible behavior. Hines characterizes variables 2, 3, 4, and 5 as "personality factors". This suggests that students need to feel that their actions make a difference in the fight against environmental degradation. Simply knowing how to take action on an issue may not be enough to initiate that action. The student needs the personal conviction, power and relationship to the Earth to carry through with environmentally responsible behavior.

EMPOWERMENT: A NEW CONCEPT FOR ENVIRONMENTAL EDUCATION

The concept of empowerment is fairly new to the field of education. It derives originally from Paulo Freire and his work with empowering the people of underdeveloped nations through education (Freire, 1970). Kreisberg (1986) summarizes Freire's contribution to the concept of empowerment:

> First, Freire points to relationships of domination as fundamental to the nature of oppression. He powerfully exposes how schooling and predominant teacher/student relationships reinforce and reproduce domination and oppression.
>
> Second, Freire outlines a liberatory pedagogy which offers "dialogue" as central to the process of empowerment. Freire describes dialogue as 'the encounter between men, mediated by the world in order to name the world' (1970, p. 76). Dialogue he says, is a 'horizontal relationship between persons. A with B = communication/intercommunication' (1973, p.44). Dialogue is fundamentally a relation of 'empathy between two poles who are engaged in a joint search' (1973, p. 44). He describes the 'matrix' of dialogue as 'loving, humble, hopeful, trusting, critical' (1973:44). (p. viii)

It has just been within the last few years, however, that the concept of empowerment has begun to appear in educational disciplines. Two areas have made particularly good use of the idea: democratic or citizenship education and peace education. Its strengths and possibilities are best

described by examining how it has been used in these two areas.

Beyer and Wood (1986) argue that classical, participatory democracy must be encouraged if individuals are to be empowered politically and psychologically. Only through the direct and effective participation in the systems that affect one's life can the attitude of personal power and efficacy be developed.

> In fact, evidence exists to suggest that when participatory democracy is practiced in a manner consistent with its three fundamental conditions — political participants having equal access to requisite knowledge, being the actual makers of decisions, and having equal power — the political process becomes more efficient[1] and participants gain a sense of political efficacy.[2] (p. 10).

Wood (1986) suggests that the "central role of education should be democratic empowerment". He defines this as "the self-confidence to collectively explore and the courage to act upon choices which are in the best self-interest of the communities to which we belong" (p. 4). This involves:

- Believing in the individual's right and responsibility to participate publicly.
- Having a sense of political efficacy, that is the knowledge that one's contribution is important.
- Coming to value the principles of democratic life — equality, liberty, community.
- Knowing that alternative social arrangements to the status quo exist and are worthwhile.
- Gaining the requisite intellectual skills to participate in public discourse.(p.4)

Thomas (1985) gives another perception of empowering citizenship education: civic literacy. This literacy involves four components: moral reflection (dialectic of valuing), civic savvy (dialectic of knowing), critical thinking, and active belonging (dialectic of participation). According to Thomas,

> each of these components . . . helps to contribute subjective meanings and understandings about our world in a broader perspective. Each of the components addresses a curricular aspect of the social studies in a dialectical way. This means that alternative viewpoints are exposed and investigated through discussion and reasoning by ongoing dialogue. (p. 168).

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[1] See Wirth, A., 1983, Productive Work —In Industry and Schools: Becoming Persons Again, University Press of America, New York.

[2] See Almond, G. A. and Verba, S., 1945, The Civic Culture, Little, Brown, Boston; Carnoy, M. and Shearer, D., 1980, Workplace Democracy: The Challenge of the 1980's, M. E. Sharpe, White Plains, N.Y.; Wirth, Productive Work.

The empowering aspect of this type of citizenship education comes from the interaction of the four components and the freedom to question current and alternative situations. By encouraging students to examine and question the underlying frameworks associated with our society (economic, political, social), they take power for themselves with respect to knowledge, values, and reflections.

While Beyer, Wood, and Thomas focus empowerment on the student, Tozer (1985) emphasizes the role of the teacher. He argues that any *program* of empowerment, handed down from teacher colleges or school boards, would fundamentally oppose the principles of participatory democracy in that the teachers have little say in the nature of the program. In essence, Tozer is suggesting that teachers should be allowed, at the teacher education level, to explore the foundations of participatory democracy in a relevant framework (addressing the student's own experience, not that of a teacher-to-be, for which he/she has no experience). "We are showing a curious lack of confidence that public school teachers are able to author their own aims and activities. Yet it is just this confidence that we want them to have in their own students as they educate them for a democratic society." (p. 198).

Peace education has been very active in applying empowerment in many forms. Originating in a concern for the current possibility of the destruction of life on earth as we know it, it focuses on three fundamental perils: "the threat of nuclear war, the progressive destruction of our life-support system, and the growing misery of half the planet's people" (Macy, 1983:2) The psychological effects of the possibility of nuclear annihilation have been well documented (Lifton, 1968; Mack, 1981). It is entirely likely that these effects apply to the other two perils as well. Collectively termed 'psychic numbing', these effects result three basic behaviors: disbelief in the possibility of the destruction of our world, denial of the need to alter these destructive activities, and the leading of a double life in which the seriousness of the situation is acknowledged but submerged under a 'life-as-usual' facade (Macy, 1983).

Macy discusses the forms in which psychic numbing expresses itself in human beings. Feelings of fragmentation and alienation are common. By hiding the despair we may feel over the

world situation, we are isolated from the rest of humanity and from ourselves. Displacement activities such as the "pursuit of pleasure and other short-term goals" may also result (1983:13). Political passivity can result from the need to feel that the government is "powerful, protective, and wise" (p. 14) in its attempts to deal with the perils facing the world. The current rise in vandalism, violent crimes, and suicides may be connected to despair as expressed in destructive behaviors. Psychological projection expressed in racist, sexist, and anti-"ism" behavior is also on the rise. We may also screen the sources of information about the world that provoke feelings of despair. Decreased mental capability has also been documented in response to impending peril. Finally, burnout and a sense of powerlessness can result from this psychic numbing.

In response, Macy has developed an approach to empowering people experiencing this feeling of despair. It consists of five guiding principles:

1. Feelings of pain for the world are natural and healthy. Acknowledge our pain for the world.
2. This pain is morbid only if denied. Validate our pain for the world.
3. Information alone is not enough. Experience the pain.
4. Unblocking repressed feelings releases energy, clears the mind. Move through the pain to its source.
5. Unblocking our pain for the world reconnects us with the larger web of life. Experience the power of interconnectedness. (1983:22—23, 37)

The power experienced through the techniques Macy describes (and practices in Despair and Empowerment Workshops throughout North America) comes from within the individual or group. It is not *given*, but encouraged to develop naturally. "We experience it when we engage in interactions that produce value. We can experience that with loved ones, with seeds we plant, materials we shape. Such synergistic exchanges generate something that was not there before and that enhances the capacities and well-being of all who are involved." (p. 33).

Kreisberg (1986) describes a peace education course taught by a member of the Boston chapter of Educators for Social Responsibility. When students approached this teacher about their desire to learn more about the arms race and nuclear weapons, he attempted to get approval to teach a course

called "Thinking Critically About National Security". When permission was denied, he arranged for the class to meet after school. His description of what happened after the class had been set demonstrates a classic example of empowerment on several levels:

> So they got together twenty kids and we had an initial meeting three weeks before the course actually started. We sat down as a group, and I said, "Why are you doing this? Why are you here?" And everybody said what brought them there. Then I asked them what kinds of questions did they have, and I wrote all of those up on the board so that they could see them. Then I asked, "Well, if these are your questions, what kind of categories, what kind of topics do you want to cover in the course?" And they sort of categorized those into about eight topics with subtopics that covered most of their questions. And then I said that I would take that information back with me, and bring back an outline with some suggested speakers and things that I thought might fit and that we would review that next time.

Empowerment occurs here, most strongly, through the students' initiation of the course. Their interest in the issues and a concerned teacher willing to assist them led to the development of a course to address their perceived need, even though the administration did not support their efforts. Empowerment also occurs when the teacher relinquished his power over the students by allowing them to generate the topics to be covered in the course. Because of this aspect, the experience is then based on the students' concerns and not those of someone else. Finally the teacher's approach to dealing with the students, as a facilitator and not a director, empowers them by making them responsible for their own learning experience.

Obviously, the concept of empowerment as it relates to environmental education has a great many possibilities. It is implied in both democratic empowerment and in the peace education movement. A few educators have called for a 'socially-critical approach' to environmental education (see Robottom, 1986), but little has been done to specifically examine the implications and the possibilities. In any case, it appears that research in this area will have to focus on empowering both the students and the teachers if it is to succeed.

SUMMARY

Every field of education envisions its society-changing potential with great zeal. We have been told that each new program will improve our children's intelligence, creativity, health, morality, literacy, independence, etc. These promises have met with varying degrees of fulfillment. Even

when the promises were broken, the consequences rarely proved life-threatening. The promise and vision of environmental education, however, provide us with a task that may hold the secret to our survival on this planet. Never before has the endeavor to educate taken such an imperative note: human beings must learn to live with the Earth and all other species and cycles, or we and much of the life on Earth will die.

As a consequence, environmental education has developed quickly (as a separate field, only within the last 20 years). It has drawn extensively from many other theories and practices in education; and, it has created its own approaches. Until very recently, however, educators in this field have emphasized fragmented and focused approaches that generally neglect one or more facets of a holistic education. And environmental education must be, ultimately, holistic. It must attend not only to the cognitive, affective, and psychomotor aspects of a child's life. It must integrate them while it integrates the child with the world in which she or he lives: the planet Earth.

We are given two ears and one mouth so we can listen more than we talk.

—Native North American proverb.

DESIGN AND METHODOLOGY

This chapter describes the design and methodology used in this study. As was mentioned in Chapter One, I have looked to four different sources for understanding the phenomenon of environmental action: teachers, students, environmentalists, and myself. It is important to point out that this is a preliminary study; any one of the viewpoints I have pursued could have generated enough 'data' for a complete thesis. I decided to include all four because I felt that it would provide a 'triangulation' that would allow a strong overview of the phenomenon upon which future studies could be built. To the best of my knowledge, this has never been done before and I felt that foundation should be built before the question is explored more deeply (whether by myself or another researcher).

Triangulation as a concept in qualitative research has a "distinct tradition" according to Jick (1979). He defines triangulation as "the combination of methodologies in the study of the same phenomenon" (p.602). Triangulation can occur in two ways. The 'within-method' form involves using the same method on different subjects. The 'between-method' form uses different methods on the same subject group. This is the form used most extensively. In any event, the "researchers can improve the accuracy of their judgements by collecting different kinds of data bearing on the same phenomenon" (ibid.:602).

Having determined that this should be a qualitative study, I was faced with deciding on the methodology to use for each of the subject groups. An in-depth study of the phenomenon of environmental action could take many forms. It could, for instance, involve an ethnographic study

of a classroom going through an experience of action. It could involve a critical evaluation of the actions of an environmentalist. It could involve a series of reflective interviews with teachers who teach environmental education. Because I wanted to deal with each of these groups, in addition to my own reflections, I found it necessary to use methodologies that would yield as much information from the subjects as possible in a short period of time. Interviews seemed to be the best way to elicit this information.

The interview formats I used varied from group to group. With the teachers, the interviews involved one-on-one, audio-recorded interviews between myself and the teacher. In the case of the students, the interviews consisted of recorded conversations with groups of students ranging in number from one to five. In both of these groups (teacher and students), the interviews were semi-structured in that I prepared a list of questions prior to the interview to guide the conversation, but I also allowed for explorations into other areas that seemed to be important at the time of the interview. The environmentalists were contacted via mail and asked to answer several questions which were phrased in a open ended manner. I view these contacts as a 'written interview'. Each of these will be discussed in more detail below.

Traditionally, research studies have had to address four issues related to the quality of the research:

1. Internal validity (truth value)
2. External validity (applicability)
3. Reliability (consistency)
4. Objectivity (neutrality)

Because these concepts evolved within the rationalistic, quantitative paradigm, they do not translate well to qualitative research. Guba and Lincoln (1982) suggest alternative, analogous terms:

1. *Credibility*: truth is determined by the people experiencing the particular situation. Assured through prolonged engagement, persistent observation, peer debriefing, triangulation, referential adequacy materials, and member checks.
2. *Transferability*: although limited as a concept by the very nature of qualitative research, the commonality of human experience can generate shared meaning. Assured through

theoretical/purposive sampling and generation of 'thick description' which imparts vicarious experience for the reader.

3. *Dependability*: defined as internal stability in the light of conscious and unpredictable (but rational and logical) changes during the research process (does the study 'hold together' in view of the site circumstances?). Assured by the use of overlap methods (triangulation), stepwise replication during the research process, and the dependability audit in which the path of research is explicitly delineated for scrutiny.

4. *Confirmability*: based not on quantitative, intersubjective agreement as in rationalistic research, but on returning to the data themselves as the ultimate confirmation source. Assured through triangulation, practicing reflexivity (uncovering the researcher's assumptions and biases), and the confirmability audit where the path of interpretation is explicated.

This study evolved reflexively. I began with the teachers as a study group. I then realized that I would need to talk to students to get a balanced and confirmable view of environmental action. In the course of interviewing the teachers, I realized that the experiences of those people classified as environmental activists would also be valuable to the study. Finally, my own entry into the world of action during the data collection period provided a fourth viewpoint. Each decision to incorporate a particular study group evolved from some aspect of the research process. Although it was not planned, I saw this process as strengthening the possible outcomes of the study. The sampling of these alternative views (both within the groups and between them) provided triangulation at three levels: transferability, dependability, and confirmability.

Unfortunately, the credibility checks for this study are somewhat weaker. The interviews I conducted with the teachers and the students and the letters I received from the activists represent a 'one-time' encounter with each group. I was unable to subsequently contact the individuals to confirm my interpretations of their responses. This was primarily due to logistical problems and time constraints. As I re-evaluate this study in the process of writing, I realize that this is an essential feature that should have been incorporated.

It does not, however, mean that the data I collected are useless or invalid. They possess some credibility in that they are triangulated between the different groups. My own experience, upon which I *can* critically reflect, also lends credibility to at least parts of the study. It is necessary, however, to discuss this problem in advance of the actual analysis in Chapter Four so that the interpretations I have made can be placed in the proper perspective.

I have strived to limit my interpretations to those themes that seemed 'crystal clear' from the transcripts. While I now view this approach to be limited, it is not without precedent in the field of educational research. Rudduck (1985) discusses a research project she 'inherited' from Lawrence Stenhouse upon his death. It consisted of a series of site case studies in the form of raw interview transcripts and accompanying documents. She states:

> In writing the overview of the LASS project we could only pay attention to the surface meanings of the documents or texts (i.e. the interview transcripts); we based our interpretations on passages that our professional second records (i.e. our substantive records as educationalists and our procedural records as interviewers) helped us to identify as offering an unambiguous statement of a perspective worthy of attention. ... The dilemma ... is how to find an approach that maintains integrity to the meanings that are between the lines of the transcript and the requirement that research be a public discourse. (p. 115).

She also cites Bartlett (1984) in describing Stenhouse's approach to historical hermeneutic research:

> The act of interpretation may occur distanced from the social context in which the evidence is derived.
>
> The act of interpretation is based on evidence derived from discourse in interview and fixated in text archived as case records.
>
> Interpretation of a single case record or across cases ... involves a process of refinement of judgements based on text evidence archived in case records.
>
> Verification of interpretation is possible through a process of critical scrutiny of texts (case records) by researchers and through intersubjectivity of judgements.
>
> Public access to text evidence in archived case records is necessary to this process of critical intersubjectivity and refinement of researcher judgement about an instance from a class or population.
>
> Text evidence is made public after following principled procedures (negotiation, access and confidentiality are key concepts) that preserve the ethical and political rights of participants in the research.
>
> The act of interpretation of texts is related to a theory of action whereby participants' reflections on human experience — consciousness — inform their actions. (Rudduck, 1985:117)

In the end, the quality of this study and, indeed all qualitative research, will be judged on the basis of the degree to which it reflects the human experience. As I stated at the beginning of this chapter, this is only a preliminary work. It points to the intersubjective reality of environmental action. If it speaks to a common reality, I hope this is due to the truth of my interpretations. Only further research and personal experience will tell.

TEACHERS

When I first began planning this study, I intended to use only teachers as the subject group. It quickly became apparent, though, that there would have to be a more comprehensive approach. As a consequence of that initial intention, however, I developed a questionnaire to include as part of the 'data'. It focused primarily on the amount of time the teachers spent on environmental education in their classrooms, the methodologies they used, and the degree of student involvement in selecting environmental issues to be studied. There was also a place for the teachers to indicate whether or not they were willing to be interviewed. The cover letter and questionnaire are given in Appendix A. In actual use, this questionnaire served more to identify teachers with whom I could conduct interviews than as an actual data collection device. Nevertheless, some of the collective results are briefly discussed in Chapter Four.

The teachers to whom the questionnaires were sent were selected from a membership list from the Environmental and Outdoor Education Council, a provincial professional association of teachers involved in environmental or outdoor education. I decided to restrict the administration of the questionnaire to this group because I wished to speak with teachers who had some experience with or exposure to environmental education. The difficulties experienced by this group would, I reasoned, shed the most light on the problems associated with environmental education. Those teachers entering the field could then learn from the experiences of these teachers. In addition, I restricted the teachers to whom I sent the questionnaire to those in the immediate area around Edmonton, Alberta. (This was primarily due to the fact that I lacked transportation with which to reach teachers in other parts of the province.)

Thirty-nine questionnaires were sent in late November of 1986. Over the next two months, twenty-two responses were received (one teacher responded twice). Once the questionnaires were returned, I selected the teachers for the interviews. I had initially decided to limit the number of teachers I would interview to twenty or less. Since only seven of the teachers returning questionnaires indicated they were willing to be interviewed, I contacted all of them to set up interview times.

During the time between sending the questionnaires out and interviewing the teachers, my focus had begun to change to its present orientation. This change was due primarily to the reading and research I had been doing in preparing the review of the literature (Chapter Two). Because empowerment seemed to address so many of the major issues associated with moving toward a deep ecology perspective, I decided to use these concepts to develop the interviews with the teachers.

I used an interview guide approach with both the teachers and the students. Patton describes this type of interview:

> An interview guide is a list of questions or issues that are to be explored in the course of an interview. An interview guide is prepared in order to make sure that basically the same information is obtained from a number of people by covering the same material. The interview guide provides topics or subject areas within which the interviewer is free to explore, probe, and ask questions that will elucidate and illuminate that particular subject. The issues in the outline need not be taken in any particular order and the actual working of questions to elicit responses about those issues is not determined in advance. ... The interviewer remains free to build a conversation within a particular subject area, to work questions spontaneously, and to establish a conversational style—but with the focus on a particular subject that has been predetermined. (1982:163)

This approach seemed to strike a middle course that would allow me to gather similar types of information from each respondent while allowing them the latitude to raise particular areas of concern (see Table 2). The interview guide I used for the teachers is given in Appendix A.

In formulating the interview guide, I used several methods to assure the quality of the questions and my ability to ask them. First, I attempted to construct questions which were "open-ended, neutral, sensitive, and clear" as described in Patton (1982:169-173). Second, I gave the list of guiding questions to my advisor and to another graduate student who was familiar with the intent of this study. I asked them to make suggestions about the clarity and focus of the questions. Finally, I conducted an independent study project which, although it did not deal specifically with this study, allowed me to practice my interviewing technique.

As indicated in the interview guide, when the teachers were contacted to set up a time for the interview, I provided them with a list of preliminary questions. This process was designed to encourage reflection on the issues by the teachers prior to the interview. It also gave the teachers a

Table 2

Comparison of Research Interview Instrumentation*

Type of Interview	Characteristics	Strengths	Weaknesses
Informal, conversational interview	Questions emerge from the immediate context and are asked in the natural course of things; there is no predetermination of question topics or wording.	Increases the salience and relevance of questions; interviews are built on and emerge from observations; the interview can be matched to individuals and circumstances.	Different information collected from different people with different questions. Less systematic and comprehensive if certain questions don't arise "naturally". Data organization and analysis can be quite difficult.
Interview guide approach	Topics and issues to be covered are specified in advance, in outline form; interviewer decides sequence and wording of questions in the course of the interview.	The outline increases the comprehensiveness of the data and makes data collection somewhat systematic for each respondent. Logical gaps in data can be anticipated and closed. Interviews remain fairly conversational and situational.	Important and salient topics may be inadvertently omitted. Interviewer flexibility in sequentcing and wording questions can result in substantially different responses, thus reducing the comparability of responses.
Standardized, open-ended interview	The exact wording and sequenceof questions are determined in advance. All interviewees are asked the same basicquestions in the same order.	Respondents answer the same questions, thus increasing comparability of responses; data are complete for each person on the topics addressed in the interview. Reduces interviewer effects and bias when several interviewers are used. Permits decision makers to see and review the instrumentation used in the evaluation. Facilitates organization and analysis of the data.	Little flexibility in relating the interview to particular individuals and circumstances; standardized wording of questions may constrain and limit naturalness and relevance of questions and answers.

* Adapted from Patton, M. Q., 1982, Practical Evaluation, Sage Publications, Inc.: Beverly Hills, California; pp. 167-168.

sense of the type of questions I would be asking. Although this may have prejudiced their answers, the reflection was necessary for responses that were sensitive to the individual's situation.

All but one of the teacher interviews were held in the teacher's classroom or school. The other teacher indicated that she would be on campus at the time of the interview and suggested that we meet in my office. The interviews lasted from approximately 35 minutes to 70 minutes and were recorded on cassette tape. I gave each teacher his or her questionnaire in order to remind them of the answers they had given and then proceeded with the interview. In my opinion, I was able to establish a good, conversational rapport with five of the seven teachers. The other two teachers responded in a more stilted and restricted manner.

After the interviews, I transcribed the tapes and conducted a thematic analysis of the content. Rist (1982) defines theme analysis as "the clustering and presentation of material by key themes found in the study." It is a method of analysis used extensively in phenomenological research. Van Manen is helpful in describing the process:

> Generally we can take two approaches toward uncovering thematic aspects of a phenomenon in some text. One is the highlighting approach. The other one is the line-by-line approach. Both approaches should be used if possible. In the highlighting approach we listen to or read a text several times and ask, "What statements or phrases seem particularly essential or revealing about the experience being described?" These statements we then circle, underline, or highlight. In the line-by-line approach we look at every single sentence and ask, "What does this sentence or statement reveal about the experience described?" As we thus study the lived-experience descriptions and discern the themes that begin to emerge, we note that certain experiential themes recur as commonality or possible commonalities in the various descriptions we have gathered. We hold on to these themes by lifting appropriate phrases or by capturing in singular statements the main thrust of the meaning of the themes. (1984:21)

He cautions, however:

> A phenomenological theme is much less a singular statement (concept or category) than an actual description of the structure of a lived experience. As such, a so-called thematic phrase does not do justice to the fullness of the life of a phenomenon. A thematic phrase only serves to point at, to allude to, or to hint at, an aspect of the phenomenon. (ibid.)

Although the interview transcripts are not phenomenological descriptions per se, the processes used in analyzing such descriptions seem particularly applicable to this study. Thematic analysis provides a form with which to triangulate within and between the different subject groups (teachers, students, environmentalists, myself). In addition, it allows me to glean significant insights upon which further research can be built.

The actual process I used is described in Barritt et al. (1984). It consists of selecting from the text (in this case, transcripts) "those moments which 'fly up like sparks' from the description". These moments are lifted from the text when possible, rephrased where necessary ('reading between the lines') and then grouped into themes or common forms. In addition, variations are also incorporated, and listed with their associated themes. These variations "throw the meanings of the common forms into relief", reinforcing the themes at times, contradicting at others. They serve as important credibility checks in the interpretation process. By reflecting on the themes, both within the study groups and across them, a picture begins to emerge of the shared experience of environmental action. These themes and the picture they paint are described in Chapter Four.

STUDENTS

During the summer of 1988, I was hired to teach a course for the University of Alberta Faculty of Extension Summer Youth University program. This program consisted of two, two week sessions taught on the university campus to junior high- and high school-aged students. The students (or their parents!) select five or six courses in which to enroll during the two week period. The classes met five days a week for one or two hours. I had been hired to teach a course offered by the Department of Zoology called Environmental Biology. When this job presented itself, I realized that I would have an excellent opportunity to interact with and interview students on environmental action.

I taught three sections in each session, each with approximately 20 students. This gave me roughly 120 students with whom I could schedule interviews. (I realized that not all students could or would participate.) At the end of the first week, I gave the students a letter explaining my study and why I wanted them to participate (see Appendix A). This letter also served as a parental release form. (Because some of the students were attending from remote parts of the province, I was unable to get parental signatures for all of the students. Where a signature could not be obtained, telephone confirmation from a parent was received.)

The interviews were conducted in groups ranging from one student to four in the classroom in which they took my class. Five groups were interviewed (a total of 13 students). The interviews ranged from approximately 20 to 60 minutes. The interview guide approach was also used with the students and a copy of the guide is given in Appendix A. These interviews were also taped.

The students who agreed to participate represented a wide mix of 'personalities'. In general terms, some were 'studious', some were 'goof-offs', some were quiet, some were boisterous. All showed an interest in the environment and the rapport I developed with each group was open and interactive. They responded readily to most of the questions and were eager to talk to someone willing to listen to their views.

After transcribing the interview tapes, thematic analysis was conducted in the same manner as that described for the teachers. With themes from two study groups (teachers and students), I was also able to begin drawing thematic commonalities between the groups. Again, this analysis is given in Chapter Four.

ENVIRONMENTAL ACTIVISTS

After interviewing one of the teachers, a discussion about the origin of his environmental activism ensued. While I was not able to record this conversation, it provided me with the idea for another approach to the question of environmental action. I decided that it would be beneficial to the study if I could get feedback from environmental activists on the reasons why they became active in protecting the environment.

The activists were selected in several ways. First, I attended the 1988 general meeting of the Alberta Environment Network, a coalition of environmental groups throughout Alberta. Most of the groups are based on a grassroots, participatory format. While there, I distributed a letter describing my study and requesting a response from them. This letter is given in Appendix A. Second, I sent letters to the board members and staff of major environmental organizations in both Canada and the United States. Finally, I requested that these contactees pass along my letter to any people they felt would be helpful, given the purpose of the study. Although the sample was not

'random' or 'scientific', I feel I reached a logically appropriate group of activists. In all cases, the letters were accompanied by stamped, self-addressed envelopes to facilitate return of their responses.

In all, 173 letters were sent to these activists. Forty-three responses (approximately 25%) were received, ranging in length from a few lines to several pages. Some of the responses (approximately five) were mere acknowledgements that the people had received my request but did not have the time to complete the letter. Three included articles that had been written about their environmental careers as their response (again, due to time constraints). All of the responses were positive and encouraging. Many of them indicated that they were grateful to have a reason to sit down and reflect on the course of their path to action.

By traditional standards, the response rate was low. There are several possible explanations for this situation. Although I asked for brief responses, the form of this request required the participant to reflect on the course his or her life had taken. Obviously, this open—ended format would require more time and effort to answer than the typical questionnaire. Another possible explanation comes from my own experience in participating in environmental issues. When an environmentalist is heavily involved with an issue, it becomes quite difficult to respond to requests that aren't directly associated with that particular issue. Priorities begin to screen the time and energy the environmentalist devotes to requests such as the one entailed in this study. After working with several environmental groups and watching the operation of several others, this selection procedure seems to be quite common. This observation is supported by some of the responses returned by the environmentalists. Those people who responded late indicated that they had been extremely busy over the summer and had only found the time to write once things began to slow down in the autumn (spring and summer seem to be the busy seasons for environmental issues).

As indicated at the beginning of this chapter, I considered these letters to be 'written interviews'. They were analyzed with the same technique used for the interview transcripts. In some ways, these letters hold closer to the form of 'data' used in the thematic analysis described by Barritt et al. (1984) than do the interview transcripts. By pulling out the themes from both types of

data, however, I was able to uncover the commonalities between the different groups.

MY OWN HISTORY OF ACTION

The data I used for thematic analysis of my own experience come from much more diverse sources than those of the other study groups. I began by writing my own personal history of action, in much the same way I had asked the environmentalists to do, only more extensive. In doing so, I used entries from a journal I kept periodically during the past year and a half. I asked people with whom I have worked on environmental issues during the past year to reflect with me on my coming to action in order to clarify certain aspects. Finally, I reflected on the influence this study had on my decision to become environmentally active by tracing and uncovering the threads that have connected every aspect of this thesis to my personal story.

SUMMARY

One of the most compelling features of qualitative research is its flexibility. It allows the researcher to adapt to changes in the design of the study. Often in the course of conducting research like this, new directions and focuses are revealed that must be attended to if the study is to be well-designed. With this study, I have attempted to respond to these changes as they have presented themselves. A certain degree of naivteé on my part, as a researcher, may have resulted in a research design that lacks a full assurance of credibility. By using thematic analysis, however, I have maintained a high degree of respect for the stated and implied meanings that the participants in this study have given to the experience of environmental action.

How can we write of unseen realities, hint of unheard concepts,
or even demonstrate the practicality of inner truths,
without disturbing the slumbering Self within?
—*Michael J. Roads*, Talking With Nature

The phenomenon of environmental action is complex and individual: each person's experience of action is unique. When these stories are compared, however, general themes resonate within the experience. This chapter describes some of these themes.

Thematic analysis is a process of pattern recognition. Some of the patterns that emerge in this study are quite general, others are more specific. In all instances they represent a continuum of experience in which some of the participants embody the theme while others reflect variations on that theme, some more closely adherent to the central experience than others. These variations are generated by the individual meanings the people have given their particular situations. As such, they are valuable in that they help paint a picture of the experience of action that more richly portrays the true nature of environmental action.

As I indicated in Chapter Three, I was unable to return to the participants with the interpretations I had made. Because of this, I have restricted myself to those themes which seem most strongly represented by the participants' comments. Although this is not an ideal situation, the problems it could generate are only ones of the depth of the interpretations, not the accuracy. Those participants who expressed ideas which, at this level, appear to lie at the periphery of the theme variations, may, in fact, harmonize more completely with the theme. By failing to return and follow-up on the deeper meanings attached to these peripheral ideas, I may have generated patterns that are more diffuse.

The themes from each group of participants are presented in separate sections. Each section begins with a general description of the major themes that were uncovered as I proceeded through this process of pattern recognition. The individual themes are then discussed in more detail and accompanied by excerpts which typify both the theme and the variations. The final section combines the four perspectives, emphasizing those themes that are common to all groups.

TEACHERS

The teachers were the most diverse of the four viewpoints used in this study. Half taught secondary school, half taught elementary. Half considered themselves environmentalists or activists, half did not (no correlation with the level of school taught). The interviews covered a very wide range of topics. Because of the style of the interviews (interview guide, see Chapter Three), there was some freedom for the teachers to explore areas they felt most strongly about. I have, therefore, restricted the selection of themes to those which were expressed by all of the teachers, in some form. As a consequence, some of the sub-themes described here were voiced by some but not all of the teachers. I have not included sub-themes that were restricted to one teacher alone.

Two primary themes emerged from the interviews with the teachers (Table 3). The first theme describes their concerns about barriers or 'roadblocks' to action. All of the teachers expressed very similar frustrations with respect to these barriers, although some were more willing to 'buck the system' than others. The second theme explores the teachers' perceptions of the important factors that encourage a student's ability to take action on environmental issues.

Table 3
Thematic Analysis: Teacher Interviews

Major Themes	Sub-themes
1. Roadblocks to Action	1.1 Administration • Time • Curriculum • Politics
	1.2 Student Maturity
	1.3 Parental Disapproval
	1.4 Lack of Integration With Other Subjects
2. Important Factors Encouraging Student Action	2.1 Exposure to the Natural World
	2.2 Having a Personal 'Stake' in Some Environmental Issue
	2.3 Knowledge of How to Take Action
	2.4 Parental Support/Role Modeling

Roadblocks to Action

Administration

The most objectionable roadblocks the teachers encountered dealt with those associated with the school system itself: administrative (Table 3.1.1). These included time problems, curriculum restrictions, and political pressure from the school administration. The secondary level teachers expressed more frustration over these barriers. They had less time with the students each day, faced more rigorous curriculum requirements (especially when diploma exams were an issue), and dealt with more controversial issues that tended to upset cautious administrations. The elementary teachers were more concerned over whether or not their handling of a particular issue was perceived (by the administration and parents) as being fair and even-handed. They did not want to be accused of indoctrination.

Most of the teachers lamented that time was a restricting factor. They had neither the time to plan for good, integrative environmental education programs nor the time to implement those already in existence. Some teachers were sensitive about the fact that the students also suffered from a lack of time, especially when the activities the teachers planned were optional or not related to diploma exams. The time constraints were associated with a need to teach the 'curriculum', which they felt was already too large to teach effectively during the school year. Time was less of a factor for those teaching elementary school (4 teachers) because they felt they had more latitude in how they apportioned the content of the different subjects during the day. In addition, they indicated that they had more chances to integrate environmental education, since they were responsible for most of the educational program the students received.

The curriculum also imposed external restraints on the teachers' abilities to bring environmental education into the classroom. This problem was often related to the time factor. There was a tendency, however, to view the optional subjects (in which the teachers dealt with environmental issues) as more important to the students' education than the required curriculum. Teachers believed that their students also felt these options were more valuable than the standard curriculum. Several teachers expressed concern that this situation might contribute to the students' feelings of

powerlessness since the students had little choice but to continue with a curriculum they felt was not valuable. This situation seems to suggest that the current approach to education, which the teachers tended to view as a conveying 'facts and theories' on an intellectual level,is less important than having the students learn about themselves and the world from an experiential approach. Finally, some teachers felt restricted by the curriculum because it forced them onto a certain course from which it was difficult to deviate when important issues arose that had relevance to the students' lives.

The political implications of environmental action presented problems for some teachers. They generally fell into one of two positions on this issue. Some felt the school boards were too restrictive with financial resources to allow them to implement good environmental education programs. Others felt the system imposed restraints on the very way they taught, especially if there was a chance that the issues could raise parental or community ire. Those teachers who agreed with the first position tended to be more understanding of the situation: they didn't like it, but what could you do? They were most concerned over their inability to take the students on environment-focused field trips, an activity which all teachers indicated was essential to environmental education. Those who held to the other position were more bitter about the state of affairs. They seemed to feel personally attacked and somewhat ashamed for having submitted to the 'System'. Only one teacher felt comfortable about the compromise he had reached in trying to resolve this problem. He is worth quoting at length on this topic:

> . . . through the Environmental Ed Council we actually had, in the past years, some session at the conference dealing with the teacher's role in environmental issues. Because, it can be very dangerous if you live in a small community and you're pushing your environmental concerns on the students and propagandizing and indoctrinating them. That's not the way to do it. First, you can get in trouble because you're using your position of leadership with these kids in a way that is not very democratic and healthy. You have biases and you've got to be open with the kids about your biases. For instance, on this water issue, one of the final things that we did was: "Ok, after this whole process is over and you guys have heard and seen all this, you got all this feedback, what is your particular feeling about the water? Do you think its safe?" Through the whole unit, all they wanted to hear from me was whether I thought it was safe. If I thought it was safe, they'd feel good; if I didn't think it was safe, they'd feel horrible. And I refused to tell them. I said, "When we get to the end of this issue where you're telling me how you feel, then I'll tell you how I feel." So, when it was my turn, I just said, "Ok, I'm no longer the teacher, I'm just Mr. ____, the citizen, who is concerned about the water, just like you, and here's my point of view." And it was pretty neat. They liked it. A lot of them came up to me afterwards and said, "We think the same way you do now." And my response to

> them was, "Why do you think we're kind of parallel on the way we think about this now?" A lot of them were able to understand that it was because their knowledge base was better compared to when they walked into the issue. I told some of those kids that their information base was at the same level as mine. So they were pretty impressed with the idea that they had gotten to the same level.

In a sense, this teacher had circumvented the possibility of negative public reactions. He has emphasized the process of environmental action, with a strong component of scientific research, so that negative comments could be defused with factual information. In today's society, this is one of the best ways to combat environmentally destructive behavior. Someday, perhaps, the more 'emotional' and philosophical appeals will hold as much sway.

Table 3.1.1
Teachers' Perceptions of the Roadblocks to Environmental Action: Administrative Aspects

Theme Statements	Variations
Time	
• I just go on. I'm so busy. I just keep going on. I don't plan it as well as I should. • Time is an obstacle. • I haven't got a lot of time to do the whole language arts business on letter writing in life science.	• I feel under a certain amount of pressure in the job that I'm getting paid to do; to do it in a particular way. • And I really believe that a lot of the students have a pretty full agenda. I think that's why a lot of them got weeded out right away, because a lot of the project work that we did on this issue in life science was semi-voluntary.
Curriculum	
• Alberta Education wants us to cover a certain amount of ground. As it is, both in life science and in earth science, there's more material there than you could cover in a year. • I haven't done that [incorporate more environmental education into the class] because I'm working with a group of students who, I feel, are under pressure to learn the curriculum, which means a certain amount of information. • I've got a certain amount of this stuff to cover during the year, and there are so many units that I work on. . .	• It is the most popular option that they have right now and I know its because the course itself gives them the feeling that the world is really for them. • They'll do something like that [environmental action] that has a purpose, but they don't like going back to the regular curriculum. • I know there's been quite a bit of work aiming at trying to come up with a curriculum or handbook or whatever but its pretty hard to deal with that in a written form because it so much depends on the direction that your group heads. • If it was part of the course, I think I would do it even more.
Politics	
• Politics, I think, not rocking the boat too much, thinking about, "What's the school board going to say?" Some boards might think it was really progressive to have that kind of thing happening, but then there will be the other effect, too. • And if you're in a typically school 'employed' system, where who ever pays the piper calls the tune, and teachers believe that, then you're not going to get teachers teaching action. You're going to get them teaching acquiescence. You're going to get kids taught to be acquiescent because that's all part of the system in which we learn.	• But you try to sell that to the school boards, come up with some support, especially now when the support system is based on financial need. • We're allowing ourselves to be put in positions where we don't get paid as much and our classrooms are larger. Why do teachers do that? They get into the viewpoint that there is someone above who knows what to do and they acquiesce to that.

Student Maturity

Student maturity was the theme most commonly expressed by the elementary teachers (Table 3.1.2). They discussed several types of maturity. Intellectual maturity was often cited as a frustrating barrier since it limited the amount of scientific data the teacher could use when teaching about environmental issues. One teacher did note, however, that he was often surprised by the level of maturity since they seemed to know more about environmental issues than he had expected.

Experiential maturity was also a common stumbling block. This most often occurred when the teacher was trying to relate a concept to the student's life world. If the student had no experiential reference for that particular concept, the teacher was unable to continue. The teacher's choice of examples and issues was most often affected by this type of immaturity.

Finally, students often had different levels of emotional/moral maturity. Teachers were particularly cautious about emotional/moral immmaturity since it allowed the students to be easily indoctrinated, something the teachers all expressed a desire to avoid (some because they felt it was wrong, others because it tended to upset the parents). Some of the teachers seemed to feel especially frustrated with the lack of maturity since students sometimes displayed openly destructive attitudes toward the environment (destroying birds' nests, littering,and revving up cars were some of the examples they gave).

A few interesting variations accompanied this theme. These variations focussed primarily on the teacher's perception of the power the students possessed as young members of our society. One teacher found the discussion of environmental issues quite useful in helping the students to reach a higher level of maturity. She accomplished this increase in maturity in two ways: first, through discussions with the students about their values and attitudes and, second, by cultivating an empowering relationship between herself and the students. By treating the students as if they had the power to make serious environmental changes, she increased their own self-images as empowered people. Another variation appeared in the form of an extreme pessimism about the potential for students to have any impact on an environmental issue. While this teacher recognized that students had the ability to change their personal behavior, he seemed confused on whether this

was an ineffective response to dealing with environmental problems. Most of the other teachers tended to see this aspect both as empowering for the students and very effective for altering the course of environmental problems. In contrast, another teacher saw elementary students as thinking they had a great deal of power when, in actuality, they did not. She was acknowledging the students' high level of enthusiasm about environmental issues, but not their ability to act on that enthusiasm. This type of pessimism seems to be typical of adult apathy toward the environment: "they're soon going to find out that they are just like a pebble in the lake."

Table 3.1.2
Teachers' Perceptions of the Roadblocks to Environmental Action: Student Maturity

Theme Statements	Variations
• It's quite difficult for grade sixes to collect all the data necessary before they can deal with an issue. • It's very difficult to have a whole group of people who are at different levels of understanding and say to them, "Death means something," when they don't know that death means anything. No matter how much you talk about it, it's not going to make any difference in terms of what they know. • I think you can only get into that as deep as the kids are taking it. You can go over their heads. • I wouldn't think it was the school's role [to get involved in controversial environmental issues] until the student had a little bit more maturity to handle that. . . . A lot of these issues, there's a lot of emotion to play on there. • They don't have a sense of right and wrong, they have no conscience, about the energy usage. I think it's still too early for them.	• So I find this course extremely useful just for talking, just general maturing attitudes. • I think their influence on adults is actually not very great. I'm being pessimistic, perhaps, but I really don't know what other things they could do. I really feel they are in a very helpless situation. • I'll bet you elementary kids think they could change the world. I think they think that. If you had a really strong teacher in the leadership role and got them gung ho, they'd believe that. I think that's the mentality of elementary kids. And I don't know if that's good or bad because they're soon going to find out that they are just like a pebble in the lake. . . . They have so much faith, especially in the teacher, if the teacher got them gung ho to do this, then they would probably figure they could do it. • They are aware to their age level about the environment. They're more aware sometimes than I think they are.

Parental Disapproval

The theme of parental disapproval was particularly interesting (Table 3.1.3). Of those teachers who said parental disapproval had an impact on the way in which they conducted their classes, only one described an actual 'run-in' with a parent after presenting an issue in class. The rest of the teachers justified this concern on the basis of hearsay and how they thought the parents would react. Their actual experience was often just the opposite: the parents expressed approval of the issues that were pursued in the classroom and the manner in which they were pursued. In general, teachers who considered themselves activists were most willing to disregard the possibility of negative parental reactions. It is possible that this desire to actively protect the environment enabled them to actually 'test' the theory that parents would not want their students to be involved in a controversial issue.

This issue is closely related to the problem of values in the classroom. Teachers were generally unsure of how to handle values in a controversial issue. They stated this directly in many cases. In other instances, they contradicted themselves by saying that they did not wish to indoctrinate the students or push their own views on them and then gave instances in which they felt the students should be 'set right' in their attitudes or values. The teachers who showed this contradiction did not seem to be aware of the conflict. It seemed rather to stem from a recognition that there exists a certain set of environmentally sound values, which they felt should be conveyed to the students but which they realized, in an unrelated way, were contrary to many current societal values. The conflict created enough tension in their philosophical frameworks that they felt uneasy with adhering to either side exclusively, yet felt some attempt should be made to reach a blend.

Table 3.1.3
Teachers' Perceptions of the Roadblocks to Environmental Action:
Parental Disapproval

Theme Statements

- I've found, in the past, that if I come on too strong, they go home and try to tell, maybe they're not very diplomatic about it, but they try to push the issue a bit. They get on very unfriendly terms with their parents or older sisters and brothers. And then they come back at me, "Hey this guy, he doesn't know what he's talking about," or "He should mind his own business." And people don't like that. They feel that, as a teacher, I take advantage of creating bad feelings in their home. And who am I to say what they should or shouldn't be doing. . . . So, personally, I've kind of backed off that a bit.
- The stories that I heard from the fellow that was doing this down there [environmental action in the community], this teacher took a lot of heat and he had to be very, very careful about how he dealt with the students.
- I think a teacher would have to be very careful, too. . . . If it was anything political, you'd have to watch if you were getting a group of students involved with something like that because you may get some parental involvement. You could work that both ways: you could get parental involvement that was advantageous, but you could also have a parent that could cause a lot of difficulties, too.
- If you were trying to initiate some decision-making outside of the realm of the school, and any issue like that you usually have conflicting opinion and so you would run the risk of maybe alienating some parent that doesn't want their child involved in it.

Variations

- I never had any negative responses at all, like, "What are you doing to these kids?", because everybody was really concerned; it was a motherhood issue. And I also think the students were really good about passing onto their parents and their families what they were learning.
- A lot of parents mention to me that their kids are on cases about, turning the lights out, and the windows need to be caulked, and that's good. That's had an effect.
- You see the Keegstra episodes in Alberta,...well he had a captive audience and he went for it. His own attitude, his issue was dealt with in great detail. But you could have the same thing happen in other areas, in environmental issues.

Lack of Integration with Other Subjects

The differences between the elementary and secondary level teachers were most obvious in this theme (Table 3.1.4). Although there were variations among the elementary teachers' approaches, they all integrated environmental education into most of the subjects they taught. Only one teacher indicated that she felt the science teacher should remain neutral and let the social studies teacher deal with the issues. This teacher did, however, describe other ways in which she integrated environmental issues, specifically through language arts.

The desire to integrate with other subject areas was most pronounced in the secondary level teachers. (The major subject area for all of these teachers was life/biological science.) They recognized the immense potential that integration held for environmental education. Most of them had tried, at some level, to achieve integration. For some, this meant incorporating other educational skills into their life science classes. For the others, it meant trying to coordinate a project with one or two other teachers, usually social studies and/or language arts. Teachers were generally happy with the results of these efforts but indicated that the time involved in coordinating prohibited them from continuing with this approach. The following excerpt is especially helpful since this teacher had experience in both elementary and secondary level environmental education:

> In the elementary class, you have them basically all day; you have them through a gambit of courses; you teach four or five courses. So if you come up with an issue you can start teaching around that issue from almost every point of view: language arts, social studies, life science, sometimes even math, it could come into art, posters. So it's very easy to hit the students at least on one level that they are interested in. Somewhere in all that you're going to hit them on the issue from one input point that they are really keen on. Now, in the junior high level, I have the life science, so my focus, basically because of the way the system is set up, has to be from a life science point of view, due to curriculum. I've got to get a certain amount of this stuff covered during the year, and there are so many units that I work on. We basically build in some time that we can explore things in, but it's limited. The only thing that I think that way a person could really get these kids would be if you had a couple of other teacher who also taught the class. Someone that you could meet with and who was also interested in the issue, so that you could approach that issue from more than one point of view. Hopefully then you would increase the number of kids you get interested because they're getting it from an art point of view or a language arts point of view.

Obviously, integration of environmental education into all aspects of the students' schooling recognizes the individuality of the students and their different learning styles. But, more importantly, it recognizes that learning about the environment is an integrative act, personally and

intellectually. In almost every case, teachers felt it was important to discuss values and attitudes along with the facts and theories associated with environmental education.

Table 3.1.4
Teachers' Perceptions of the Roadblocks to Environmental Action:
Lack of Integration with Other Subjects

Theme Statements	Variations
• I don't organize a lot of things that have to do with changing the environment. . . . Maybe if I were in the high school where there are more teachers and you could all work together. . . • What I perceive is the kids are concerned with getting through the course, getting the mark. They not only have environmental education; they've got other parts of biological science; they've got math; they've got physics; they've got chemistry; they've got French; they've got English; they've got other concerns. And it's really easy to look at all this stuff intellectually. • The language arts people help by giving them research techniques and the library, sending letters out to various institutions. And then the language arts people give them the correct method of writing a bibliography and a reference list and things like that. . . . But the actual environmental issues don't get added in unless they're just a small section, of sort of discussion or thinking questions. So, there's no action-orientated kinds of things. I have been involved with a letter writing sort of thing with the seal hunt. There's a teacher here who quite often uses that in her language arts classes. • You could have a theme, and language arts and social studies and science could all come together.	• When these cutbacks came and we knew that the hunter ed camp was going to probably be shut down, I had the student spend a period and just draw what they found most enjoyable: what did they learn, what was something that really stands out in their minds when they were out on the camp. • We just present all sides and try to stay neutral. I think a lot of this happens a lot more in social studies. I don't teach social studies, but I think that those are the people who do deal more with issues than a scientist does. I mostly just deal with the facts, "now here they are." . . . And the social studies teacher would more likely get into the real issues behind it. Should we legislate lead-free gas or what ever.

Important Factors Encouraging Student Action

Exposure to the Natural World

There were very few variations on the theme, exposure to the natural world (Table 3.2.1). In nearly every case, teachers treated the need to take their students on excursions into the environment as a given. Actual exposure to the natural world was viewed as important for every aspect of environmental education. Such experiences gave the students physical examples of the things they had been learning in the classroom; increased their motivation and interest in the subject; helped change their attitudes toward the environment; and fostered a respectful connection with the earth.

For many of the teachers, the field trip at the end of the unit or the year served as a time in which they could evaluate the effects they had had on their students. This evaluation was not so much in terms of grading the students' behavior or skills, as it was a self-evaluation for the teachers. In a sense, teachers were asking themselves, "Did I get through to them? Do they understand how important this is?" The teachers looked for things like respect for the environment, respect for the other people, self-motivated interest in nature, a desire to share their interests, and a recognition of their responsibility to the environment.

One of the most interesting variations that did appear in this theme was that of the child's reverence for nature. Teachers who described this perception saw it as an in-born aspect of the child. As one teacher put it, "It's not something that they have to be taught to care about. It's something that they inherently have a feeling about." These observations suggest that the process of growing-up is a gradual moving away from nature and our connection to it. These teachers seemed to feel that connection was something that should be nurtured and expanded since it was, ultimately, the source from which the desire to act would come.

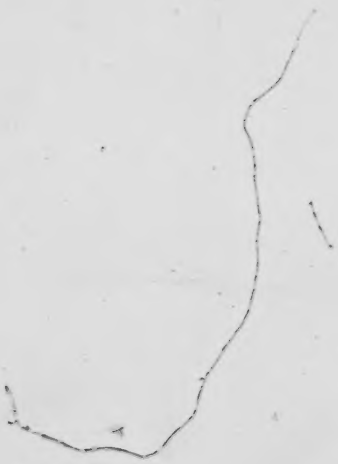
Table 3.2.1
Teachers' Perceptions of the Important Factors Encouraging Student Action:
Exposure to the Natural World

Theme Statements

- I think for the city kids, it makes them more aware of things. . . . For example, if I show a nest to a city boy or girl, a good deal of them would have only one thing in mind, "How can I play around with it?" . . . You take somebody who has lived in the country and show them a nest, they will look at it but there's not the overriding though of, "Hey, I can throw that egg at someone". I really find that there's quite a difference. And hopefully, by taking them out and showing them, they will adopt some of that attitude.
- With the program we do in grade six, I think that it's sort of a hands on thing. When we go out to ski or go out to winter camp, they're right there. I suppose you hope a good attitude towards the environment rubs in by actually doing these kinds of things. . . . But it's not necessarily, specifically academic.
- It's hard to evaluate unless you go camping, "Ok, what sort of things made you upset at the camp site?". . . Again, provide them with a number of activities so that they feel good about their environment, planting things and getting involved that way. But it has to be an act. There has to be some sort of environmental relationship that is a positive one for their environment.

Variations

- I think it's easier when you're right in the situation. It seems to be better. In the classroom, it almost seems to go over their heads. But when they're out there, they almost feel more reverence for the situation, more reverence for the animals.
- I think the advantage is because all children, at least any children that I've worked with, do care about animals, care about the environment, and the outdoors. They're much closer to the outdoors than we are. They walk places, they aren't inhibited when the snow starts falling. . . . The advantage of teaching environmental education to younger children is that they do care. It's not something that they have to be taught to care about. It's something that they inherently have a feeling about.
- Actually kids are very involved in lots of different issues and its funny how we think kids aren't. But they don't tell us.
- They have to experience it themselves, rather than intellectually read it. Without that experiential component, it is more of an intellectual exercise and I don't think biology is an intellectual exercise.
- I guess in an ideal situation is where you take them on a camping trip for a few days where you're going to live under the same roof for a while.



Having a Personal 'Stake' in An Environmental Issue

Student interests, obviously, contribute to motivation in the classroom. Environmental education is no exception, according to these teachers. When the environmental issue moves beyond interest to impact on the students' lives, however, the issue becomes more than an intellectual activity. Students begin to develop an emotional connection to the issue. All of the teachers who mentioned this theme indicated that this connection had more to do with how well the students responded to a particular issue within the context of the classroom than any other factor (Table 3.2.2). If the students could not relate an issue to their own personal experience, they tended to adopt the attitude of, "Who cares? It doesn't affect me." An exception was noted in the younger children where this attitude was not explicitly displayed; rather, they merely showed no interest.

This theme seemed to have more impact on the day to day functioning of a teacher's actual classroom lessons. It did not seem to relate to the outdoor experiences the students received. Once they moved outside, the motivating factors derived more from the students' natural connection to nature described above. In other words, the intellectual activities of the classroom that dealt with environmental issues needed to be emotionally connected with the students by placing the issues in frames of reference to which the students could relate. This was not necessary for outdoor activities, since that connection already existed.

Most teachers accomplished this 'connecting' by allowing the students to select the issues the class would pursue. This method appeared to work quite well since, as most of the teachers indicated, it is important for the students to learn the processes for dealing with environmental issues rather than the facts about a variety of issues. Three teachers described units in which they had taken the students through an in-depth study of one particular issue which was selected by the students. In the course of exploring these issues, the students began to see the interconnections that characterize any environmental issue. They realized that a great many things affect them personally even though they could not relate to them until a closer, more personal issue lead them to that realization. As a consequence, the teachers felt students were more willing to connect with other,

less personal issues. In contrast, the teachers who took more control over selection of the issues seemed to struggle to maintain the students' interest as they moved from issue to issue, conveying the facts in a purely intellectual manner.

Table 3.2.2
Teachers' Perceptions of the Important Factors Encouraging Student Action:
Having a Personal 'Stake' in An Environmental Issue

Theme Statements	Variations
• If they aren't interested in something, they won't do anything like that. But if they are interested and it's an important issue to them, that's something that they will do. • I think it's going to have to be something that they are going to know the repercussions from. Now a dam on the Red Deer River, the kids in St. Alberta aren't going to notice that. • Elementary kids hardly think about next week, let alone ten years from now. So it has to be an issue that's more immediate in their lives, and it doesn't have to be a big one either. • But if there is some connection, if they saw something that suddenly made sense to them about how thoughtless we are sometimes in terms of ecology. Those kinds of things don't seem to be part of what they do. Students are never able to intellectualize them. So the question is "How come they're not able to take action?" Partly because they haven't ever really experienced it and partly because their concerns are intellectual concerns and taking action involves an emotional commitment, sometimes, for it to be effective. • We were doing a unit in the spring time on pollution of the environment. We had a very, very rough year that year for Edmonton water. For about two weeks it was just horrendous. Newspapers picked it up, media picked it up, kids were drinking it, trying to bathe in it, trying to cook with it, their parents were talking about it. So it became an issue really quick that everyone wanted to learn about. So we definitely investigated that one.	• Each student prepares a bottle and they set up an ecosystem within the bottle and they keep track and see how long things survive in there. . . . They are very interested and quite amazed sometimes at how things, "Oh gosh, this thing is dying out", and some of them get quite upset. If it's alive and the living things in there survive, they are quite pleased about it. . . . And we discuss how that sort of is the same as Mother Earth except on a much smaller scale, so here they can see it all in front of them. . . . Some of them are like a pet. They become really fond of it. • What I've said to them is, "What this is going to show people is that this is something that you find important." So that is what I want you to do: show them what you think is important about the course, about what you learned, about being outdoors, about animals, whatever, you're open. • Unless you can offer them some other experience besides being in the classroom, I don't think they'll ever feel empowered by it or feel that the information that they've got in the classroom is going to really make a difference in their lives. When they see that it actually does make a difference, then they feel more powerful and they start to see knowledge in a different way.

Knowledge of How to Take Action

Although only three teachers actually taught units that involved some form of action at the end of an issue investigation, there was a general consensus among the others that this approach was beneficial (Table 3.2.3). Some teachers described action projects by other teachers, but indicated that they weren't able to create a similar situation in their own classrooms (due to the barriers mentioned above). This theme is closely related to the previous one in that once the students' are concerned about an issue, it is necessary for them to learn how to act on that concern. Teachers who followed through on action in the classroom encouraged their students to develop their own ways of approaching the issue, stepping in only when students stalled or seemed to be pursuing methods that would be ineffective. Interestingly, it was the teachers who described themselves as activists who incorporated action into their classes.

It was important to all the teachers, even those who expressed doubts that the students had any real power, that the students be told that they had the power to change a situation. For activist teachers, this perceived power was demonstrated to the students by showing them how they could use that power in the present by taking them through an action situation. For the other teachers, it was a matter of showing them how they could use the power in the future (e.g., through voting). They saw the student's role as consisting of learning the system so this knowledge could be used "when they get older."

There seemed to be no real agreement on what constituted effective environmental action for the students. Some teachers felt the students could do as much or more than adults could (except, of course, vote). They could lobby, write letters, demonstrate, join environmental groups, volunteer, change their own behavior, talk to friends and family, etc. Other teachers saw their students as being limited to writing letters and talking about their feelings. A few of these teachers felt that the students didn't even have that much control over their own behavior since much of that was regulated by the students' parents. While there was a general tendency for the elementary teachers to see their students as having less power than secondary school students, there were exceptions in both groups of teachers. The teacher's own state of activism seemed more closely correlated to the

amount of power they felt their students possessed. It was as if those teachers who had never experienced an activist situation were unable to visualize the many alternative ways in which a person can encourage change for a better environment.

In actuality, then, this theme becomes more related to the teacher's experience than the student's. The students often already possessed the necessary interest and concern (or can be carefully guided to that place), but they need role-models to show them how to take those concerns to action. If the teachers involved have never personally made the decision to actively protect and defend the environment, they may disadvantage their students by failing to provide role-models of activism. When this is the case, the teachers need to honestly recognize the fact and seek to remedy the situation. This is not to say that the teachers need to become active themselves. Rather, they should strive to bring their students in contact with people who have made that commitment so the process of mentoring can begin.

Table 3.2.3
Teachers' Perceptions of the Important Factors Encouraging Student Action:
Knowledge of How to Take Action*

Theme Statements	Variations
• So what I emphasize to the kids is that we do something that is very close to us, very immediate. We do it very quickly, but with intensity. And when it's over then we go on to something else. And maybe that's the key: you don't drag it out. You make your case or state your point and somehow we just keep battering away at it. • If you make it really complicated, then you are directing it, because they can't keep track of all the complications: we've got to do this and contact this person, in two weeks we've go to do this. If you make it very straight forward and uncomplicated, they can keep track of it, they know what they're doing and they don't have to ask you, "Ok, what do we have to do tomorrow?" Then you get out of the picture and it's really their thing. • What I keep on saying to them is, "It won't be long and you are at the voting age and you will have the voice. It won't be too long and you will have the power. It's up to you to turn off the ignition key when it doesn't need to idle or to not rev the engine uselessly."	• I didn't say, "It's essential that we do this because we will move government." I didn't say that at all. We're going to show them what we think is important and that's all we can do. I told them when things get cut back, we have to fight in our own way. Some of the kids were talking about writing to hunter education and talking to the people in charge. A few of the kids think they would like to do a little more. Most of them were quite pleased to do what we did, and see what happens. It's hard to say what would really happen if nothing really came of it. • I think those kids that did that study on the Old Man River learned more about how to operate in the world than any of the classes I've taught. And they learned more about it because they did some research, they did a little background, and the found out how an ecosystem works, and they explored what it means to make a statement about, "We don't want certain things done to the river. And even though the industry does, we will support our views clearly." So they get into every aspect of it, at every point. And they have a basic belief that what they think is right, which adults tend to loose.

* One teacher described an action approach in detail. Since there is a great deal to be learned from examining it in its entirety, a major excerpt has been included in Appendix B.

Parental Support/Role Modeling

Parental support contributed to the students' abilities to take action in two ways (Table 3.2.4). First, teachers received support for their activities from the parents, freeing them to pursue important, sometimes controversial, issues. Since the issues that most interested the students were often controversial, it enabled the teachers to use issues that had meaning to the students. And second, some of the students received parental role modeling of environmentally responsible behavior at home. Obviously, this has the potential to have the strongest impact on the students' behavior of any of the modeling to which they might be exposed. In some instances, though, the parents seemed to give over the job of role modeling to the teachers. Those teachers who experienced this phenomenon indicated that the parents felt relieved to have someone take responsibility for this aspect of their child's education..

Parental role modeling does have the potential to work in the opposite direction, as one teacher noted. If parents have destructive attitudes toward the environment, it is quite likely that their children will reflect these views. In this case, the model becomes a barrier to action; not because the child feels disempowered, but because she/he doesn't recognize the need to change the destructive behavior. This represents indoctrination in its purest form.

Table 3.2.4
Teachers' Perceptions of the Important Factors Encouraging Student Action:
Parental Support/Role Modeling

Theme Statements	Variations
• The parents, they have been very, very supportive of the course and what I have been doing. . . . They feel it's very important that the kids learn a lot about, not just the environment, but about themselves and about feeling good about being outdoors and that kind of reverence and feeling in rhythm with where they're living. • One parent came in and said to me, "You know, the kids think that if they want to get something done, they ask you to get it done." • Actually the kids are very involved in a lot of issues and it's funny how we think kids aren't; but they don't tell us. . . . They really are involved a lot more than we think in their parents' concerns, in concerns their parents are involved in. • The parents? No, no negative responses at all. Lot's of verbal feedback, "I dont have the time to do this myself, I'm glad somebody in my family is doing something about it." • I know for sure five [of the nine action-takers] come from very environmentally sensitive families. So it's a family thing; it's an attitude that the people have in their families about how to treat the environment. • But at that age, eleven or twelve, most of their decisions are made by their parents and they're influenced by those decisions.	• The letters had to be taken home so their parents know what's going on. And I also though that was a good idea because their parents were also involved in this and I though it was a good idea for the parents to see that their kids were actually at the stage of letter-writing. • I have my kids do reports and one boy did the wolves in B.C., and his father was a hunter and he had hunted himself. And all the rest of the kids were saying, "Why?". . . And the kids were acting like the boy had something wrong with him. But he brought up the amount of money that his father spends in going out and hunting each year. It opened up the eyes of some of the kids on what is involved. But for some of them it wasn't a good feeling, to change their attitudes about it.

STUDENTS

Although there were a large number of themes and sub-themes associated with the students, there was much more accord between the individuals than was seen with the teachers. There were only three or four instances in which a student would disagree with the opinions of the group; even then, the disagreement would be over details and not general concepts. This is not to say that the students' views were without contradiction. On the contrary, there were frequent cases in which the students would voice one thought and later apparently contradict that idea completely. These contradictions occurred both individually and as a group and seem to have far more to do with the complex nature of environmental problems than with any inconsistency the students may display.

Three primary themes emerged from this group. The first theme, students' perceptions of parental influence, was tightly clustered around a single idea: the parents, in nearly every case, had a strong and positive influence on the students' environmental values. The second theme centered around the students' knowledge of environmental issues and their thoughts on the responsibility that knowledge placed upon them. The final theme is the most contradicted one. Here the students expressed, sometimes with great emotion and tears, their feelings about the environment. I consider this theme to be the most vital of those conveyed by the students. It touches the heart of the feelings we all experience when we contemplate this Earth and our relationship to her.

One final observation should be noted about the students' comments. There was another, more encompassing, 'meta-theme' which applied to all of the themes expressed by the students. They wanted people to listen to them. They wanted to be able to talk about the state of the environment and their feelings about it, both good and bad, without being patronized or dismissed. They wanted this from their parents, from their teachers, from adults in general, and from their peers. This appeal seemed to go beyond the need to 'spread the message', although that was certainly part of it. It was an instinctive catharsis. Somehow, they knew that to hold these feelings inside was unhealthy, both for themselves and for the environment. The native peoples of this continent say that children are our counsellors. There is great wisdom in our children's words, if we would but *listen*.

Table 4
Thematic Analysis: Student Interviews

Major Themes	Sub-themes
1. Students' Perceptions of Parental Influence	--
2. Students' Knowledge of Environmental Issues	2.1 Students Possess a High Level of Knowledge of Environmental Issues 2.2 Students Receive Relatively Little Environmental Information From School 2.3 Sources From Which Students Acquire Environmental Knowledge 2.4 Students Feel They Have More Knowledge of Environmental Issues Than Adults 2.5 Students Feel a Responsibility to Share the Knowledge They Possess
3. Students' Needs to Express Their Feelings About the Environment	3.1 Anger, Sadness, and Hopelessness 3.3 Love of Nature 3.4 Optimism for Their Futures

Students' Perceptions of Parental Influence

The students all acknowledged their parents' influence on their feelings about the environment (Table 4.1). In a few cases, students felt that they had come to a concerned position without their parents' influence. But comments made later by those students revealed that their parents had, in fact, indirectly predisposed them to a caring attitude. This contradiction may be due to the students' asserting their independence by insisting that they have originated these ideas and concerns.

Parents seemed to influence the students in two ways. The first involved role modeling of environmentally responsible behaviors. The students mentioned things like recycling, conserving electricity, reducing vehicle use, etc. The second way parents influenced their children was by answering questions and explaining processes: generally, teaching through the oral tradition. This method of influence was woven into the children's daily lives. It began when they were quite young and continued at the time of the interviews. Rather than use their own personal knowledge, some of the parents would encourage their children to join them when watching nature documentaries on TV. Thus, television became an important teaching tool for the parents, whether they used it deliberately or merely through their own interest in watching the program.

An interesting variation appeared among some of the students. They agreed that their parents were concerned about the environment and had passed that concern on to them. Nevertheless, they didn't wish to model themselves after their parents, since they felt their parents had done nothing to act on that concern. To the students, this was unacceptable and irresponsible. While their judgements may have been harsh, they recognized that their parents' inability to act may have originated from the same paralysis they themselves felt.

Table 4.1
Students' Perceptions of Parental Influence

Theme Statements	Variations
• We try to save electricity, and we collect rainwater and my mom and dad both quit smoking. • I remember my dad explained how chlorophyll was in leaves. Just basically teaching me what I wanted to know and making me understand what the world was about. • My family has always been concerned about the environment. They're not radicals, but they've always been concerned. • Well, my mom did have a lot of influence on it. She doesn't use a vehicle, she uses her bike or she walks and she's very conservative. • My father's really concerned, but he's a politician and he's very involved with agriculture. . . . And my mother is also very involved in trying to. . . she doesn't teach me that much anymore to the same degree; just to always be very aware of what is happening. • My family has always taught me to never waste and to always be cautious about what you're doing. It was never a "take advantage of the situation" kind of thing. • Well, we live out in the country so my parents were really concerned, when we were growing up, about telling us how this works and how this works and how this affects that. So, they really tried to get the facts they knew across. They wouldn't tell us things that they just made up because they wanted us to find out for ourselves the whole story before we did anything about it or judged it. So, they're concerned with problems that I get into and they try and make me see how everything as a whole will affect everything else.	• I know my parents have concerns about environmental issues. They sit around with their friends and they talk about it, but they never do anything. I don't want to be one of those people who talks about it and doesn't do it. • I don't think that my parents have had any effect on anything that I've done. They haven't done anything,: neither of them watch the news. My parents don't think about those kinds of things. It's not that they just don't talk about them; they don't think about them. They aren't irresponsible or anything; they just don't think about that kind of stuff. They lead their own little lives. . . . [later in the interview] One thing that I think is kind of weird is that, they're in their thirties and they don't know about this kind of stuff. I guess my mom, my mom watches a lot of nature shows and stuff. She's always watching those kinds of things, but my dad doesn't think about that kind of thing at all. I guess my mom knows a lot about it, but it's not like she teaches it to me or anything. She doesn't talk about it. But I'll watch those kinds of shows with her. • I try sometimes to get my dad to. . . like you have to spray, otherwise you're not going to have anything, but I try to tell him not to spray as much stuff. And we're pretty good about chemicals, keeping them in sealed containers. I guess it's just a lot of protecting the environment for everything in it too, for the animals.

Students' Knowledge of Environmental Issues

Students Possess a High Level of Knowledge of Environmental Issues

Conventional thinking assumes that environmental education must begin with teaching the students *about* environmental issues: the facts and theories associated with environmental problems. The insights gained from these interviews, however, appear to contradict that assumption (Table 4.2.1). These students already know *about* environmental problems. How can they help but know? They are bombarded on every front by information about the environment (as are we all). And the sophistication of their knowledge is quite high.

They know their facts. That is obvious from these conversations. They may not know about every environmental issue, but the ones that interest them, they know cold! Granted, the actual statistics may not be within their immediate grasp, but they generally know where to find that information. They know about acid rain, arctic development, ecosystem stability, toxic waste, nuclear power, erosional forces: the list goes on and on. Since my focus during the interviews was on the issues that concerned them rather than their level of knowledge, they may know more than I have indicated here. Their knowledgeable responses during the environmental biology summer course I was teaching also contributed to these observations.

They also understand theories. Their understanding of theories is, for me, the most fascinating aspect of these students knowledge about the environment. They have a very real sense of the interconnectedness of the ecosystems on this earth. They know that it is unrealistic to expect that changes will be limited to the immediate area surrounding the change. They know that synergistic effects are possible when the environment is changed ('chain reactions'). They know that the degradation of one part of a system indicates that the whole system is unbalanced. These are very sophisticated concepts —— concepts that were being conveyed by thirteen and fourteen-year old children!

There tends to be a certain snobbery associated with interpreting the amount of knowledge a person has on a particular subject. Some of this may come from the high degree of specialization inherent in the scientific community. Some may stem from an insistence on absolute knowledge by

those interested in delaying positive environmental action for economic reasons. The effect, in any case, is to discount those people, like these students, who may have an excellent grasp of the concepts but lack specific data. For example, when a student says, "I don't want that pulp mill to be built in my town because it will pollute the river and the air," the typical response from industry has been, "We have studies that show that the levels of pollution are acceptable. There won't be any harmful effects." The students' concerns are denigrated, even though such concerns have often proven to be well—founded.

When assessing these students' knowledge on environmental issues, I focused on the ultimate effect this knowledge might have on their decisions. Did they know enough to cause them to be cautious in their dealings with the environment? Did any of their misconceptions cause them to make environmentally destructive decisions? Was their current understanding sound enough to build future studies upon, without major corrections or revisions that might cause them to mistrust their own abilities to interpret reality? When evaluated by criteria established by the interests mentioned above, these students might be perceived as possessing inaccurate and unsupported knowledge. When evaluated on the terms I have used, these students were very well informed on environmental issues.

Table 4.2.1
Students' Knowledge of Environmental Issues:
Students Possess a High Level of Knowledge of Environmental Issues

Theme Statements

- Like with Chernobyl: covering it up with three tons of cement or whatever. That doesn't get rid of the radiation. It just covers it up. It's just going to go through the ground.
- I tried to tell people that they [swallows] eat mosquitos and people just look at you like you're kind of crazy.
- Right now, they're spraying all the lakes and getting rid of all the algae. Well, algae is the main producer of our oxygen, so if man changes that, then it could hurt a lot of us.
- In the Northwest Territories, they have a ban. You can't uncover the ground. You can't take off the surface cover.
- Yeah because of all the permafrost and it'll upset the whole balance of everything.
- Like when they were putting in the pipeline, big trucks would go through. Way up north around Inuvik, if they drive a big loader through there, the track marks will stay for ages and ages. No grass, nothing, will grow there, absolutely nothing will grow in the track marks for years. And so they're really, really careful. There's heavy restrictions on what can be done, and the kind of machinery that can be taken through the tundra.
- Some of the reason is because of the erosion. If those trees were still there it wouldn't erode half as much.
- In science we learned about toxic waste, radioactive waste, and where they're storing it. It's being stored in places that aren't suited and it's polluting everything.

Variations

- Like lot's of people say well this is just going to happen, that's no problem, it'll just go away. But even if this one species dies, that can lead to five more dying. I think that a lot of people aren't aware of the facts of everything that's going on. They don't really know what's happening.
- Some people think that it doesn't affect them, but it really does. It doesn't affect that one particular person, but it affects mankind as a whole. And some people think, "Well, who cares about John next door. He dies of acid rain, as long as I don't die, that's all that counts." If elected officials put more. . . if countries all worked together to solve them instead of little groups here and there.
- I think a lot of it's been taught through the years, like the Greeks, how they thought the universe centered around us and not we centering around something else. I think it's just a general ignorance that all mankind has had and it's just passed down and eventually it'll either wipe us out or we'll have to get rid of it.
- I would agree, that has to be up to the person, that if they want to do something about it, it has to come from within. But I also think that people don't understand the chain reaction that'll happen, that everything is interdependent in the universe.

Students Receive Relatively Little Environmental Information From School

The students almost unanimously agreed that school contributed very little to their knowledge about environmental issues (Table 4.2.2). This was an interesting theme in that it showed how perceptive the students could be. Some recognized that the teachers could get in trouble if they taught about controversial environmental issues. Others believed their teachers held back for fear of scaring the students with a gloomy environmental outlook. Still others felt that their teachers didn't include environmental issues because it wasn't in the curriculum. Whatever the reason, they all agreed that more time should be spent on environmental issues in school. They also agreed that it should be started young——in kindergarten.

A few students indicated they received some of their information from school. They all expressed the same problem with this instruction: "We talked about the problems, but not really what you can do." The teachers tended to focus on the facts and theories of environmental issues; something the students already possessed. Students wished to move beyond this stage to action. Their plea for people to listen to them was especially strong. They constantly expressed a desire to have the teachers, "Just listen to us, get our views on things." When one considers the implications of this theme and the previous theme, it seems necessary to rethink the way in which environmental issues are generally handled in schools. Granted, there are individual teachers who seem to be pursuing an approach that attends to these problems, but the tendency appears to be that described by the students: teaching about environmental issues rather than with them.

Table 4.2.2
Students' Knowledge of Environmental Issues:
Students Receive Relatively Little Environmental Information From School

Theme Statements

- My science teacher wasn't really talking about pollution. He just discussed all different types of rock on the planet. He writes on the board, and we copy it, but we don't get very much information.
- I think he sort of starts out and we're interested and we ask questions, but he never gets into it too deep because it's not part of the program. We always have to catch up because we're always behind. I know there's a lot of kids that are interested, though, because, whenever the subject comes up, we go off topic all the sudden. We don't usually go off too long, because he just doesn't like that.
- Well, we talked about the problems [in biology], but not really what you can do.
- Actually, no, they pretty well have none in school. Right from grade eight in science, all we've been doing is minerals and learning about rocks!
- I think that for myself, I haven't really learned that much.
- *So you've covered environmental stuff in school? Have you guys also talked about that in school?*
  Not very much.
  Never.
- We've studied things, like the effects, in science. But we haven't really been exposed to, international organizations or anything like that. We come from a small town and not too much goes on.

Variations

- You get some teachers that are really worried about it and try and tell you about it and everything. I think that if people don't want to know it, they aren't going to . If they don't want to learn it they aren't going to learn it. It has to come from inside yourself, if you really want to do something about it.
- Some of my teachers avoid the situation. Maybe they're afraid of scaring us or something.
- And the earlier you start, the more effect you're going to have later on. If you started educating people in kindergarten or whatever, eventually when they turn twenty or twenty-five, they'll know what happens.
- I think they should teach us in school. We didn't have time in the year that we went. We did environmental things, we didn't focus on any problems. I think that that should be written into the curriculum. I think it does help if you start at the bottom and educate a small group of people and then they educate other people that they know and it just becomes more wide spread.
- I think teachers care but where we live, if the teachers try to get us involved in something and we start a protest, then the teachers will get fired. That's the way it is, so we can't really involve them in what we do, we have to build it up on our own, no matter what the adults say.

Sources From Which Students Acquire Environmental Information

This theme was essentially a survey of the ways in which the students attained the information they possessed (Table 4.2.3). As a consequence, there were no variations on this theme. The students mentioned four primary sources: TV, newspapers, magazines, and books. The source mentioned most often was TV. Students seemed particularly inclined to watch "nature shows". These shows were able to affect the students emotionally, which they seemed to crave. In conversations after the interviews (not recorded), several students mentioned that they were brought to tears by these programs. This emotional impact seemed especially important when the majority of the information the students receive is factual and detached.

Students appeared to actively pursue environmental knowledge. They sought out the TV shows and planned their viewing time around them, if possible. Most specifically looked through the papers for environmental articles. They regularly examined magazines, especially those that dealt with some aspect of the environment (National Geographic, Ducks Unlimited, Audubon, etc.). This seems to indicate that their interest in environmental issues is high. In addition, they chose methods for acquiring this information which also hold their interests. This is not to say that they would find any other methods tedious. They chose methods that were easy to access and that they can pursue independently, without having to rely on another person to provide the information.

From my experiences during the course, the students seemed quite willing to gain information from a classroom setting when it was presented in a clear, sensitive manner. They commented that they liked the way I didn't make the subject so complicated and confusing. They were also extremely attentive when, on the last day of the course, I told stories about my own involvement in an environmental action situation. Taken together, these incidents seem to suggest that, while they are not receiving their information from school at the present time, it is not because they consider school to be inherently incapable of teaching them about environmental issues. There is still a great deal of potential for environmental education lying in the student——teacher relationship.

Table 4.2.3
Students' Knowledge of Environmental Issues:
Sources From Which Students Acquire Environmental Information

Theme Statements (no variations)

- One of my friends, is really into that kind of stuff. She's always watching the news and she keeps herself really up to date.
- I saw a TV show one time. They were beating these baby seals with clubs and they were just screaming. It was so gross.
- There's so many different kinds of TV programs and books out that I think it's helping get through to a few more people, indirectly.
- Books, newspapers, and my TV nature specials and things that deal with those kinds of things.
- Not in school, but if you read the paper, if you read journals. Ducks Unlimited has a magazine that they circulate, and environmental papers, if you read those, they can sure teach you a lot, but not in school. They don't have very much in school.
- I can remember seeing a show on TV about a bunch of kids, I'm not sure what grade they were in, but just little. And their class got together and they did a whole bunch of activities, and just from their activities, they got government to help them and they bought rainforest land that's actually set-out land, nothing can be done to it, it's saved. And lot's of other people thought, "Hey these are little kids. What can we do too?" And they joined in. That kind of helps, I think.
- Most of the stuff I watch on TV is generally nature shows, nature things. Once in a while, I watch the news and I'm always reading lot's of magazines. I'm always going through National Geographic.
- If something happens, I want to know why and how. So I keep up on shows and magazines and stuff as much as I can.
- Well, I read the paper every day, so I read a lot of stuff in there. I also try to watch the TV news as often as I can. I find that sometimes they have really good broadcasts on it, but also they try to censor what the average person sees instead of saying what's really happening, which I don't agree with.
- A large part of what you can learn is just by watching TV. Shows like the Nature of Things. Just by reading the paper and watching TV, you can learn a whole lot. And if they put that together with, in school, just general knowledge that you could access real easily, I think mankind would know a lot more and wouldn't be as ignorant about it.

Students Feel They Have More Knowledge of Environmental Issues Than Adults

The students' perception of themselves having more knowledge of environmental issues than adults emerged incidentally to the other knowledge themes (Table 4.2.4). This situation was prompted partially by their frustration at not being taken seriously in their concerns. Although some of the students felt they knew more facts than the adults did, most were referring to the clarity with which they saw the issues. To them, there was no question about what should be done to solve environmental problems. That adults could not see this was a source of sadness and frustration. A few students believed that adults didn't act because they too felt helpless. Still, they felt a feeling of helplessness was not a sufficient reason for allowing the world to become so terribly polluted and unstable.

To a cynical adult looking at the statements in Table 4.2.4, these students might appear naïve. "There is more to it than that," an adult would argue. This arguement is, perhaps, the most difficult aspect of taking an environmental stand. Environmental problem—solving in our current society is seldom creative. We are generally unwilling to accept the possibility that our lifestyles must change if we are to continue living on this planet. Those lifestyle changes are currently viewed as a reduction in affluence. Since affluence has, traditionally, been associated with quality of life, a reduction in affluence was seen as a step backward. However, when you consider the fact that many people are finding their affluent lifestyles less than fulfilling and lacking in meaning, a change seems more acceptable. The change that seems to be needed involves a re-evaluation of the definition 'quality of life'.

These students seem to understand the distinction between a quality life and a life of quality, since they were willing to view the sacrifices they had made as moral statements. "I never go to McDonald's," or "I never buy hairspray in a can," were frequent comments. They had made these decisions and they failed to see why adults could not do the same. Interestingly, they didn't view these stands as sacrifices. Instead, they felt proud that they had taken a stand and carried it through.

Table 4.2.4
Students' Knowledge of Environmental Issues:
Students Feel They Have More Knowledge of Environmental Issues Than Adults

Theme Statements

- They say that we're children and we don't know what we're talking about, but, in fact, if you listen to any of us, even right now, we have more of a sense than some of the adults that have been around on the earth and should know more than we do, but they don't.
- I think maybe at this stage of the game, the age we are, we don't have the same power that an adult does. Often we're dismissed as not understanding and also we don't have the power to vote. Every vote counts, and that is true because if a whole bunch of people feel the same way and they don't bother voting, then there's something that could have been, that didn't happen. We each have a say, and, if we all work together or at least express ourselves, then something can be done.
- I don't understand why they do that, because sometimes I think that young people have more insight than adults because adults are always putting down what you try to do.
- We haven't been desensitized like they have. They've been around too long or whatever, and they think you're stupid.
- I'd like to see more nuclear disarmament and people looking out for their environment. And not being so ignorant to what's going on around them.

Variations

- I think a lot of people want to see something happening but they want to see it before they do anything. They want to say, "Hey, that guy did it, he's one guy by himself, so maybe I can, too." But the problem is everyone is waiting for someone else to do something.
- Their parents. Like you mention something to them that you're going to try: help our economy or something by going to the government and requesting something. They say, "You're just a kid. You can't do that. They're just going to turn you down."

Students Feel a Responsibility to Share the Knowledge They Possess

These students were more than willing to accept the responsibility that goes with knowing about environmental problems (Table 4.2.5). That responsibility is to spread their message and share their knowledge. It may sound evangelical, and, in a sense, it is; but these students felt so strongly about the state of the environment that nearly every one of them expressed a desire to help other people 'see the light'.

The students felt that most people didn't behave in an environmentally responsible manner because they didn't realize that their actions were harmful. The students wanted to convince them that they *could* change their behaviors. Accompanying this desire, however, was a small amount of embarrassment. They felt people made fun of them for believing the way they did. One student seemed to sense that ridicule may come from the discomfort people feel when they contemplate their relationship to the environment.

The variations for this theme were diverse. One student felt the message should be focused on students since they would be dealing with the problems in the future. Some students believed that people know about the environment but choose to do nothing because they are lazy or selfish. Another student realized that students needed to spread the message, but knew that they didn't really know enough to stand up against the authorities. All these variations describe situations that could benefit from a sensitive environmental education program: one which enabled them to spread the message, build confidence in their own abilities to argue effectively and convincingly, and feel hope for the future of this planet.

Table 4.2.5
Students' Knowledge of Environmental Issues:
Students Feel a Responsibility to Share the Knowledge They Possess

Theme Statements

- I'd like to make other people aware. Sometimes when you're really concerned about the environment or issues like that, other people make fun of you or people seem to think it's funny because you're really concerned. And I don't understand why that is. May be it's because you're really serious about things that they never really thought of. I'd like to make other people aware and maybe get involved in some of the issues that concern us.
- We're the next generation. If we're started now, even though we aren't doing anything now, when we hit that spot, we're going to be the ones doing things about it. Even if they aren't listening to us now, they're going to have to, because once we hit that spot, there's nothing they can do to not listen to us.
- You need to get information circulating around because most people don't know what's going on and it's, I guess you could say it's our responsibility to tell them.
- You have to change the attitudes of people. You can't just say, "Well, we're going to do this because it's good for the environment." You have to make them believe that it's good for the environment. You have to make them feel that what they are doing is right and that they shouldn't do this because it's wrong and it'll hurt them in the long run.

Variations

- We have to start getting educated now and filling ourselves in now about what could happen in the future because we're the ones who are going to affect what's going to happen in the future.
- You can try and convince more people to be on your side. . . . Show people that you're responsible enough to know what you're talking about and take action on it.
- Its mostly just us, the kids, who are concerned. We don't know what to do. We don't have enough information to figure out alternate things that they can do.
- I think a lot of people don't realize it until it hits home. But there's a lot of people out there that know but they just don't really want to.
- I think most people think they're just little people and they do little things like litter. So if you stop littering then, that's always part of the problem. And then people just think, "Oh well, I have nothing to do with making acid rain or any of that kind of stuff," so they just think, "Well, I don't know what it is or how it's done and I don't know how to fix it." So they just leave it to someone else and then think about the things that they can do right off hand.

Students' Need to Express Their Feelings About the Environment

Anger, Sadness, and Hopelessness

The students' reactions of anger, sadness, and hopelessness at the state of the environment are not unexpected. Most people have felt these reactions when faced with a situation or event such as the Exxon Valdez oil spill. It is incomprehensible that such things could be allowed to happen. Yet, they continue and increase, despite all efforts to remedy the situation. These are the feelings the students were expressing (Table 4.3.1).

Their anger was directed both toward themselves for allowing such things to continue and toward the adults for pursuing short-term personal gain in spite of the environment. The inwardly—directed anger is the most damaging of the two. Anger toward another group can, in some cases, motivate people to act. When the anger is directed toward themselves, the students' self—esteem is lowered. Since it takes a great deal of confidence and courage to battle environmental problems, lowered self—esteem only works against a person's efforts.

The sadness the students felt was equally familiar. A person feels sadness when they experience an injury or loss. Both apply in this case. The injury they feel is to the damaged environment. Because they expressed such a close connection to nature (see below), their sorrow is to be expected. The loss they feel is the lost potential of their futures. They often expressed sadness when they thought about their futures. When coupled with their disbelief and sense of powerlessness, this sadness moved even deeper to hopelessness.

For me, student hopelessness was the most painful of the themes that emerged from this study. I knew, intellectually, that people often felt this way. The books and studies I had read described the phenomenon in detail, from its cause to its effects. But to actually see the despair on these children's faces and hear the fear in their voices was almost unbearable. To have a fifteen—year old girl say that she has already decided that she will not bring children into this world because she doesn't want them to experience the helplessness she has experienced is, to me, unconscionable.

For most students, this sense of hopelessness came from two sources: a lack of support from the people around them and a feeling that the degradation of the environment is inevitable and

irreversible. Since both of these can be addressed by a teacher in the classroom, it is possible to reduce hopelessness through a sensitive environmental education program. It is not enough to simply tell students that they are being silly or exaggerating by thinking that the world is going to self—destruct. These are deeply—felt and terrifying emotions which the students must learn to handle (using methods such as those described by Macy in Chapter Two), regardless of whether the teacher feels they are unfounded. All teachers have a responsibility to acknowledge these feelings and devise methods for addressing them in the classroom. Otherwise, the paralysis that comes from hopelessness will reduce environmental education to nothing more than a mental exercise.

Table 4.3.1
Students' Need to Express Their Feelings About the Environment: Anger, Sadness, and Hopelessness

Theme Statements	Variations
Anger	
• Anger. My first response is anger towards industry and towards myself for living in a society that destroys its environment.	• Some people think it'll help them economically, or help the economy. And they're sacrificing the future for the short-term goal, short-term results.
• I don't understand how a bunch of bureaucrats can sit around and govern what's happening to the environment when they're miles away. Sittin' behind their desks. . .	• It seems that these people are isolating themselves from reality. They're out to get a profit and they get a profit at other people's expenses and not their own. They never realize the results of their actions.
Sadness	
• Most of them have an attitude, "Who cares? It'll never happen to me." And that's kind of sad because it is happening, it's going to happen to us and then when it happens, everyone's going to wonder why.	• My first reaction is sort of sad because people don't really realize what they're doing. But, I guess it's sort of difficult to change all the sudden when you've been living like that for such a long time.
• There are so many ways that it could affect where I live and it's kind of sad to think of what it could do. But I think another feeling that I get, is I wish that everyone felt the same way that I do, or everyone felt that there was something wrong with it, or that they knew what was going on.	• Why do they have to build so many [bombs], that's my question. And if they don't use them, then they have to dismantle them or get rid of them. How do they do it? Do they think about it at all when they develop them?
Helplessness/Hopelessness	
• Just what's the use? There's nothing you can do 'cause it's the government that's doing it all. So that's how everybody I know feels: there's no use.	•I know one thing that I'm really worried about is, do I really want to bring children into this world? What about my children? What kind of a world will they have to live in?
• I think adults contribute a lot to helplessness, to making us feel helpless. . . . Adults have a way of saying, "You don't really know what you're talking about. You shouldn't be doing this," or statements like, "Who do you think you are?" or "Are you special?"	• I have really straight views on that: I don't want to [have children]. If it's still this bad when I know I'm going to have kids, then I don't want to see them go through the helpless feeling that I went through. 'Cause it's not pleasant, and if things are worse. . .
• I sort of feel the same way, like when our ecosystem falls apart, I hope I'm not here to see it, 'cause it's too depressing.	• Yeah, it really makes you sort of feel like, "What's going to happen to us?"

Love of Nature

The love of nature holds the seeds of an approach to helping the students overcome their hopelessness. It confirms the teachers' recognition of a child's natural connection to the Earth. Nearly every student expressed some form of this connection and caring (Table 4.3.2). Some responses were more obscure than others, but the essence was the same. Students enjoyed nature; they were concerned about nature; and they wanted to protect nature. Without further conversations with the students, it is difficult to go beyond this point to suggest that they see nature as an extension of themselves. Nevertheless, the very act of caring has brought the natural world within their sphere of interest, their field of caring. This is sufficient to engender a reaction when the subject of that interest is threatened. If properly directed and supported, the internal reaction can be externalized in the form of action.

One student described a situation in which she convinced her grandparents to save a marsh from conversion to farm land because she loved the blue herons that nested there. While describing this experience, she began to cry. The herons had meant so much to her that when she saved their home, she felt very powerful. The act had great meaning for her. On another level, this example also demonstrates that arguments made and won on the basis of emotional appeal are very compelling. They affect the person making the argument because they are part of his/her life world. And, they can affect the people to whom the argument is made because they can reach into their hearts and, perhaps, stir some of the same protective feelings the advocate is experiencing. When combined with strong intellectual support, emotional appeals are potent.

Table 4.3.2
Students' Need to Express Their Feelings About the Environment: Love of Nature

Theme Statements (no variations)

- They're doing a lot of destruction to the environment around where I live, like cutting down habitat and stuff and I was really upset. I was offering Mr. Kowalski [the environment minister] letters because it didn't really appeal to me what they were doing. They were just coming in and clear cutting like crazy.
- These mud swallows built their nests and were living very happily and peacefully and everyone was enjoying watching them, until our school division decided to get their very intelligent construction workers to come and paste up plastic along the walls of the school so the birds couldn't nest. I think that's going to cause a real decrease in the bird population.
- I worry about the wildlife: what we're doing to the wildlife and animals and how we're harming the animals. I think that once there's no more animals to harm, (we're harming ourselves right now) but once the animals are gone, then there's only ourselves.
- The government was going to take down a forest that was right beside a park. There's paths in this forest. Its right beside a river. Its really pretty and beautiful for walking. They were going to take down this forest and build a shopping mall.
- At three or four, I may not have fully understood what it was, but it helped me come to a realization, this may sound dumb, but, that the earth was ours and that we had to take care of it.
- I think people have to have a basic respect for the environment. It wasn't put here for us to wreck and we have to understand the ramifications.
- When I was nine, I'd go out to my grandparents' and I'd see the herons there, blue herons. They wanted to build more farmland. This may sound dumb, but, they wanted to extend their land and I started to cry because I didn't want them to build into where the herons lived. So I saved a family of herons. Really it's very little. but it's like. . .

How did it make you feel, when you think back on it?

No, this is dumb, but, it made me feel good because like they're going extinct really fast, not extinct, but they're getting rarer. So that made me feel good, that I could have some effect.

- But in Peace River, if you go up on a hill, you can see the sunset perfectly and it's all clear. It's going to get bigger and the river's going to get polluted and you won't be able to go swimming in our swimming holes anymore. And nature, like the wildlife and stuff, is going to start diminishing.

Optimism for Their Futures

Their optimism for the future is the most obvious contradiction in the students' interviews: They expressed both hopelessness and optimism (Table 4.3.3). The optimism was centered around their feeling that something could be done to change the current state of the environment. In most cases, students believed that a group was needed in order to be effective. They saw the power in banding together with other people who feel the same way. A few students felt that hopelessness was only a matter of how you looked at the problem: If you saw the world as beautiful and worth protecting, then you had the ability to change things.

It is difficult to determine the reasons for the contradiction between the optimism expressed here and the hopelessness from the earlier theme. It seems to be related to the nature of environmental problems. In a sense, these students are standing on a boundary between two paradigms: the dominant social paradigm and the new environmental paradigm (see Chapter Two). As they look back toward the old system, they see an environment that is slowly being destroyed. Since their very lives depend on its health, the situation is alarming and paralyzing. When they look forward to the new system, they envision a world in which the problems are solved and the environment protected. They see a world in which human beings relate to each other in gentle and supportive ways. Although there is a definite utopian element to their vision, it is not completely unattainable. There are changes occurring in the world which lead them to believe that this vision can become a reality. The task of environmental education, then, is to help the students gather the skills to attain this vision.

Table 4.3.3
Students' Need to Express Their Feelings About the Environment: Optimism for Their Futures

Theme Statements	Variations
• Because we're younger, I think we may be more able to be more forward in our attempts to change things. Adults might be offended by another adult trying to do the same action, but because we're younger they might see it as, "Ok, she's putting in an extra effort, let's do this for her this time." Governments seem to be more receptive to people that are younger that are really concerned, than a whole bunch of people that are older. • I think to stop the feeling of helplessness, you have to have a good view on it, too. Sometimes it's hard not to think that it's kind of hopeless and that everything around you is getting polluted and dying, but if you think that it's a beautiful world that we live in, and how lucky you are to be living on it and if you can just do something to make it better or improve the bad things in it. • Well, you can say that you're helpless, but that's not doing much good to the environment, 'cause they're still going on with it. And if you say that you're helpless, then the government says, "Oh yeah, that means that we can go ahead and do whatever we want to do." So don't admit that you don't have any power, just don't admit it.	• I think that one person alone would have a lot more difficulty than in a group. But if you get a group together, even just seven year olds, you can do a lot, if you really put you minds to it. But if you have the attitude where you think, "Aw, I'm just a little kid, I can't do nothing", then nothing's going to get done. • Its harder to do it on your own. If you have some kind of committees set up, or a group that takes action against this kind of stuff, then it's easier than going out on your own and doing it. You have to have support, otherwise nobody's going to pay attention to you. • What I thought about before, is everybody getting into a certain committee and they take care of this problem, and everything's ok. • I think a lot of people don't think that they'll make a big impact. But I think that if all of us have the same attitudes and we all work together then we'll be able to do something. • You start off with not littering, then maybe that'll lead to the people as a whole, en masse, trying to work against bigger problems. I think you have to take it one step at a time. It all starts with the attitude of people. • Talk to us about it. Just talk to us about it. Get our views and let us hear their views and how they think and how they think that we could help things.

ENVIRONMENTALISTS

The environmentalists' responses were even more cohesive than the students'. Their descriptions ranged from a few notes written in point form, to several pages. Almost without exception, two themes were expressed: a connection to the Earth and a relationship with a mentor (Table 5). The connection to nature was the same as that revealed by the students. The environmentalists were more expressive and descriptive than the students, but they were talking about the same phenomenon.

The mentor theme took several forms. Some mentors were specific individuals, some were parents, some were peers, and some were environmental groups. In all cases, the mentor provided the emerging activist with a role model and a confidant in the struggle to protect the environment. A few environmentalists described situations where their connection to nature was developed by a mentor; but, for most of them, these two events were usually separate.

Although I received 43 responses, the themes were so tightly clustered around these two phenomenon that I have included only those excerpts which are most representative of the themes. Since nearly every response displayed these two themes, a complete list would be unnecessarily long and repetitious.

Table 5
Thematic Analysis: Environmentalists' Letters

Major Themes	Sub-themes
1. Connection to the Earth	1.1 Early Experiences 1.2 Adult Experiences
2. Relationship With a Mentor	2.1 Individuals 2.2 Groups

Connection to the Earth

Early Experiences

Some environmentalists indicated that their love of nature developed when they were children. This could occur in two ways: by a specific, high—impact event and/or by a gradual awakening. The high—impact events are listed under the theme statements column in Table 5.1.1. The gradual awakening examples are given in the variations column.

Environmentalists who described high—impact events were very specific about the effect the events had on them. For some, the event shocked them into the realization that there are other beings on this planet that have the same right to live as humans do. They may have already subconsciously felt that connection, but the event brought that feeling into the light. Thus, the event became one in which the child's circle of beings that should be assigned moral standing is explicitly expanded. For other activists, the event exposed them to a natural setting unlike any they had ever experienced. The setting was usually spectacular enough to draw the child into a higher realm of affinity with nature. Again, the effect was to raise the child's moral conscience. By bringing other beings (including ecosystems) to the level of moral consideration, the child has begun to experience, in a very real sense, the interconnection of life on Earth. If a tree has as much right to exist as I do, then we must have something in common.

Other environmentalists came to this realization through a more gradual process. It tended to permeate their lives rather than hit them at a specific place and time. It came from the places of play and imagination. They found places to call their own, places in which they could be themselves, and places where they felt at home. Their comfortable relationship with these places endeared them to the young activists. Nature entered the child's field of caring or *Dasein*. The child "secretly hears his own name called whenever he hears any region of Being named with which he is vitally involved" (Evernden, loc. cit.). Because nature was so necessary to these children, they were compelled to protect it later in life.

Table 5.1.1
Environmentalists' Connection to the Earth: Early Experiences

Theme Statements (High Impacts)

• In retrospect, the first milestone occurred at the age of ten years. It was a small game hunting trip that provided the first major influence. A friend's father took my friend, Kevin and I on a day-long hunting trip for snowshoe hares. We never saw a hare but we did see dozens of chickadees. Without even knowing their names (black-capped chickadee, their species name) we literally blew dozens of them away with a 22-calibre rifle. What Kevin's father said, I cannot remember —— he simply lifted the gun out of our hands and unceremoniously set the weapon down against a tree as he walked away leaving us to wonder. Kevin and I immediately perceived his dismay (although it was implicit and not explicit perception) and proceeded to discount the shootings. "I didn't really shoot as many as I said", Kevin said. "I am not sure I shot any", I said. There was no profound change in my life or even a noticeable change at the time. However, years later, as I look back, I realize I haven't shot anything ever since. This was clearly a turning point. Rather than provoking a radical anti—hunting view, the event had a more moderate effect, instilling a profound respect for life, all species of life.

• I'm thinking back to my "beginnings" as a questioner of values and I expect it was back in the days of being 5 or 6, catching gophers with my dad in the cemetery near home in Calgary. We made a lasso, put it around the hole and waited. Dad explained a few fine points about life in the gopher world—families, etc. and then it happened. Out popped a head. Quick—pull the string. Down it went, dragging the string. As the string ran out, dad told me I'd have to kill the animal if I wanted it; did I want it that badly? Needless to say, moral decisions are made young; a gopher dragged a string around until it died of other causes. My neighbor had gopher pets, and a few dead ones, but not me. I stopped "hunting".

• As a young boy, I grew up in North Vancouver. We lived one block from "undeveloped" forest and spent all our playtime there. Then someone somewhere decided that a school would be built in this particular forested area. No one ever asked us what we thought of it; no one ever told us what was going to happen. One day bulldozers and equipment showed up and started to knock down the trees we had played in for years. I still carry a lot of sadness and hurt from that day. We took the law into our own hands and fought back as best we could; vandalizing, damaging things, etc.

Variations (Gradual Awakenings)

• Growing up in a small town in the hill country of central Texas, I developed an awe and appreciation for the natural world. Kerrville is located on the Guadalupe River, known for its century—old cypress tree, limestone bluffs, Indian artifacts, and abundance of natural wildlife. My awe for nature soon grew to a deep concern an I began to take notice of the increasing levels of contaminants, trash, and general degradation of the river and the surrounding region. Of course, at that time I did not know that the dirty foam and grease in the water was due to contaminants, but I knew it was not right. I knew that this river and the land around it was the home of many other creatures and that they must be suffering because of this.

• Behind our house (an old mews) was a large moor, a grassy pasture, or commons, where locals grazed their cattle. It was here and in a nearby oak forest that I spent much time playing as a small child. I also remember taking numerous trips to the ocean and playing around in the tide pools, something to which I attribute my later interest in marine biology.

• As a small child (and to this day) I would go into the woods to seek solitude and to escape from family pressures.

• Growing up on the farm taught me what John Muir learned years earlier, that "everything in the universe is hooked to everything else." The wonder of how consistent that is and the love of all natural things it engendered, prepared me to be interested in preserving the natural environment as soon as I became aware —— sometime in my mid—twenties —— that it was in danger of being lost or at least spoiled beyond recognition.

Table 5.1.1, con't.

Theme Statements

The school is still there and whenever I go back for a visit, I make a point of going for a walk in the small remaining treed area. I suppose it was the start of a passionate relationship I have with the environment.

- When I was fifteen years old, my whole family made a two—month trip to Alaska. For the first time, I saw the many magnificent beauties of this wide country, its wilds and its wilderness, its mountains, its lakes, its rivers. Few things in my childhood had as much an influence on me as that trip. . . . It was the adventure, the excitement, the connection with the natural world that I relished while I was growing up —— that and the beauty. The beauty of the natural world was so rich, it would hurt sometimes.

Adult Experiences

In contrast to the previous theme, environmentalists who believed their connection to nature developed in adulthood were more likely to arrive at that connection through a slow gradual awakening than a high—impact event, although both occurred (Table 5.1.2). There was an interesting paradox in this theme. Some activists reached the connection by intellectual processes that lead to emotional commitment; others started with the emotional connection which then lead them to an intellectual realization of the need to act. Both phenomena seemed equally able to motivate the person into action.

The love environmentalists expressed for nature was especially poignant. These were places that held special meaning for them personally. But they also touched the environmentalists on a more 'cosmic' level. They were usually places the people had some physical, personal relationship to: a home, a recreation spot, a region. But some of these activists appreciated the places on a level that moved beyond this personal significance; it became more esoteric. They *felt* the beauty of these places; the living essence that gave voice to their deepest feelings of connection with something larger than themselves.

The outcome of this connection to the Earth is the same regardless of the age at which it occurred. The environmentalist realizes that there are other beings which deserve to be protected. The protection may arise from a realization of the rights those beings inherently possess, or it may derive from a recognition of the interconnections that exist between all life on Earth. Both views have the potential to produce the same level of concern and activism. It seems counter—productive to argue over which view is 'right'.

Table 5.1.2
Environmentalists' Connection to the Earth:
Adult Experiences

Theme Statements	Variations
• In this time, I became exposed to the field of ecology which led me in my third year university, when I was 19, to transfer to the University of British Columbia to study marine biology. It was here that I began to spend much more time studying nature and spending prolonged periods in a personal relationship with it. I should stress that through this time, it was very much a personal and inward looking experience, rather than a larger concern for the well being of nature and its long term future. . . . It was here that I gained a personal relationship with the prairies and realized both their beauty and importance. It was during this time that I reflected on individual awareness of the importance of the environment and realized that I would rather spend more of my time educating and influencing others about the importance of the environment, rather than a position with World Wildlife Fund at this time (1986) to coordinate the Wild West Program, aimed at restoring portions of the Canadian Prairies. • I fell in love with the desert and mountains which surround Tucson. During those four years I spent much of my time exploring Arizona and of course this had a major impact on my life. Arizona is a place of great natural beauty and historical magic. • So it's no wonder I chose to make my home in the mountains as an adult, far removed from the cities which I had never known anyway. Here, closer to the wild than to the civilized parts of our world, I feel at home. Here in the natural beauty, surrounded by the rich greenery of trees, touched by the gentle sprinkle of a spring rain, enriched by the blue sky and its striations of pink and mauve at sunset, I am at home. • The exhilaration and wonder of the mountain world around me, of relying on my own resources, carrying only the essentials on my back, provided me with a new perspective and great inspiration. It was a superior substitute for any religion, for I truly felt that I was as close to God as anyone could be. I also began to reason that humankind in grossly arrogant in its attitude toward the environment, the order of which was so much more whole than anything ever devised by "civilization" as it is laughingly referred to. • When I started hiking too, I became aware of how terribly fragile the alpine areas are. When as a child I walked in the woods, it was in the deep south where the woods seem less fragile, although still beautiful. But these Cascades are so exquisite they take my breath away. After taking several of these hikes, I began to feel guilty that I wasn't helping to save them. I began to feel responsible for these forests. It was then that I went to my first Sierra Club meeting.	• The first was my recognition as a veterinarian of unexplained health problems in the cattle of the Rocky Mountain House area. My investigations lead me to the interaction of SO2 (from the sour gas plants) and animal health. I was unable to get any co-operation from the provincial government and started going public with my concerns. . . . The second major issue which got me involved in environmental issues was the Odyssey, a major resort convention center which was proposed for the Kootenay Plains, a unique and sensitive area west of Rocky Mountain House. Through opposing (successfully) this project, I learned how to organize and implement an action plan or strategy. We used a large variety of actions in that campaign. • When the Army Corps of Engineers proposed in the early '70s to build a dam on the Applegate River ("my" river), I wasn't worried. It was such an absurd notion I knew it would never happen. I didn't even bother to vote when the matter was put to the local citizens. Now the Applegate is dammed and tamed —"my" river. I felt like a traitor. Later when I became aware of proposed logging on the hill facing my house ("my" mountain), I moved into action. I couldn't let down the environment again; I would do what I could to save what I loved.

Relationship With a Mentor

Individuals

Once the love of nature has been instilled in a person, there must be an impetus to act. For a few of the environmentalists, the love of nature was the impetus. For most, however, another element was required. They needed a mentor. Traditionally, a mentor has been regarded as a "wise and trusted counselor or teacher" (American Heritage Dictionary). While this has usually meant a single person, I have applied it to groups as well. It conveys the essential elements of this relationship: knowledge, trust, and sharing. It is a relationship that builds the activist's confidence and self-esteem. It is also an enjoyable relationship.

Some environmentalists found this relationship in an individual (Table 5.2.1). For most, this person was someone who had already discovered that connection to the Earth. The mentor then conveyed that love and concern to the activist. In some cases, the mentor relationship was a short, single encounter; in other cases, the mentor helped guide the person for a longer period of time. In all cases, the mentor displayed some aspect of themselves and their love of nature that showed the environmentalist what must be done to protect the Earth.

Another type of individual mentor was described by some of the environmentalists. This was usually someone within the person's family: a father, grandfather, brother, husband, etc. These mentors modeled environmentally responsible behavior for the activist, drawing him or her into their patterns of behavior in a natural and subliminal manner. They helped the activists realize that caring for the environment begins at home; something the activists who had these types of mentors stressed in their letters.

Table 5.2.1
Environmentalists' Relationship With a Mentor: Individuals

Theme Statements	Variations
• This course brought to me some of the desperately needed knowledge that is so key to understanding the spiritual relationship we for the most part lack in our interaction with this earth. . . . Before the end of this course, I went to visit with this professor, who possessed an abnormal easiness in his manner. Before I left his office, he had charted a course outline that would qualify me as a naturalist. . . . [This professor] offered to take students on a midnight bird watch. Only six students agreed that this was a good idea. "Bring rubber boots", he urged us. . . . It was a comical, but at the same time rather classically moving scene, as the professor in tennis shoes (honest) babbled about frogs as the students stood at the side of the slough, rubber boots and all. He saw his first Great Grey Owl that night and the experience was once again moving and enlightening. Later in absolute darkness, all the students participated in a drenching frog hunt (something I would have thought was reserved for 'kids'.)	• My grandfather took us for long walks and he knew all his flowers, birds and mammals.
• An important fact is my recollection of a grade school teacher who returned from a summer vacation with tales and **black and white** slides of a trip west; I recall that it must have been either Yellowstone or Yosemite. Her enthusiasm and sense of wonder clearly started something in me! I must have been about 10-12 years old at the time. . . . For absolutely unexplainable reasons, that grade school teacher, whose name I've long since forgotten, did plant a seed, a sense of wonder at the special beauty of our wild areas.	• While living at home, my parents encouraged me to participate in boy scouts. One older brother invited me on hiking trips and this same brother is now active in the environmental field and we now share views freely.
• Until I graduated from high school, I belonged to an outdoors-oriented, active Girl Scout troop led by a woman who loved the out-of-doors and all it had to offer.	• My father was a fourth grade drop-out in his native land (Holland), the product of poverty and deprivation. His cynicism was extreme, but his over-riding thirst for knowledge of the world around him drove him to self-education. He often sought haven away from home at age sixteen, and for twenty years roamed the Earth. His breadth of experience and understanding of that experience provided him with a wisdom of man's place in nature, from which even fifty years ago he accurately predicted man's increasing abuse of the environment, the effects of which we are only now beginning to realize. He saw it all as misplaced economic priorities (he was very political in his views). He was a "dyed-in-the-wool" socialist! Naturally, a lot of his philosophy rubbed off on me. We frequently walked many miles during my youth in the urban and country-side environments. And, I too became an avid reader. . . mostly on natural history, the animal world and the physical sciences. While my key interest was in meteorology, it did not, alas, become my vocation.
• I first was exposed to the subject while in Junior High School. A spokesman for the local Issak Walton League came to speak to our school class about wildlife and soil conservation.	• My parents —— who would take me to the mountains and New Jersey shore —— they instilled a love of the outdoors in me.
• My interest in environmental matters must come from having spent a lot of time in the woods as a child, and from the influence of a high school teacher of biology and paleontology who asked us to "speak to the earth". David Brower sparked my interest in the struggle with his defense of Grand Canyon. When I met him a few years later he recruited me to the Friends of the Earth Foundation, where I met others of like mind.	• [My husband,] Stewart little by little explained that by taking people to see the beauties of nature, we made people want to save these areas from damage by pollution or development. In the middle of each hike, there was a break for refreshments and a short talk on the threats to natural areas. These talks grew increasingly sophisticated over the years.
	• Growing up on a farm in the 1930s and 40s, I was taught never to waste anything and to reuse everything possible. "Recycling" had no yet been invented, but this habit did stand me in good stead when recycling became the environmental thing to do to avoid running out of scarce resources and landfill space.

Groups

The group mentors were also well represented by the activists (Table 5.2.2). They fell into two types: circles of friends made prior to action and groups joined in order to take action. Those who made friends with people who were already active described a process that involved support, encouragement and camaraderie. They were able to express the feelings they had for the Earth with people who understood; who didn't have to be convinced that these were valid emotions. And they were able to learn from these people how to act on those feelings. The support allowed them to take on challenges that they had previously felt were far beyond their capabilities or strength. There was a sense of not fitting into traditional society, a loneliness, which was alleviated by finding this niche.

While some of the environmentalists happened upon their niche in the course of other pursuits, others actively sought out these groups. They had a desire to support or be involved with an environmental group; sometimes because they wanted to spend more time in the outdoors, sometimes because they wanted to know more about the issues. Whatever the reason, they joined the group first and then became more actively involved. The activists describing these variations were less likely to mention the personal, friendship quality of involvement with a group of like-minded people. It is possible that the more structured, national organizations are less responsive to an individual's need for that mentoring relationship than local, issue-specific environmental groups. This is primarily conjectural at this point. It is entirely possible that the people who described experiences with organized groups simply didn't include references to those relationships. That in itself, however, is telling.

As one can tell from the environmentalists experiences, the sequencing of events motivating the decision to take action become less important than the elements that combine to produce environmentally responsible behavior. There were many variations on the order in which the events occurred. Some people developed the connection to the Earth which they later acted on with encouragement from a mentor relationship. Others developed the connection as a result of their involvement with an environmentally oriented group (usually in the process of going on outings).

Still others, responded to a specific instance of environmental degradation, using that as the impetus to join others in the fight. Regardless of the sequence, these elements combined in a way that was as individual as the people themselves to create a person who was willing to actively protect the environment.

Table 5.2.2
Environmentalists' Relationship With a Mentor:
Groups

Theme Statements	Variations
• I guess the one thing that got me going was meeting some people from Tennessee while I was attending a National Wildlife Federation conference in Colorado (1979, when I was 28), we became friends, and I visited them in Tennessee where they worked for the Conservation Department. I learned from them about the environmental problems in their state, and when I returned to Canada, I started to become aware of the problems here. . . . Gradually, since then, my friendships have tended to center around the movement, and they influence my attitudes, determination and confidence in myself to a large degree. . . . Moving from a passive to an active role in the movement happened in 1985 (age 34) when I met some people on a hiking trip who were actively involved, was that I was interested and encouraged me to do something about it. A lot of my reluctance to get involved, common among women, was a lack of self—confidence that I could do many of the things that I wanted to. Having those people encourage me was enough to push me over the edge, focusing me towards the place I am today.	• Became Natural History Club delegate to Federation of Alberta Naturalists and learned from there on that what you like has to be fought for and appreciated. Otherwise the natural world goes down before the demands of progress and most people don't realize what they have lost until it is gone.
• After exploring some of this area and seeing what the timber companies were doing to the area surrounding the proposed park, I became very active with this group. This small band of wonderful folks believed that people could make the world a better place to live. They were right. In 1968, President Lyndon Johnson signed legislation creating the North Cascades National Park.	• One thing I do remember at the time was a weekly magazine titled "Look and Learn" which was geared towards nature and the sciences on which I would spend my 'pocket money' (about sixpence) without fail. There were many articles in the magazine on nature.
• I met the people in charge of trips and by mutual agreement I was a trainee on my first Sierra Club trip two weeks later. The knowledge I gained and the people I met kept me in it since that time.	• I joined the Sierra Club primarily in order to go on wilderness trips; but at the same time I was exposed to all their literature (primarily their magazine), and their concern with wilderness preservation became increasingly important to me.
• Seven years ago I went on my first Sierra Club back packing trip, because this trip was going to the area where I could catch the one trout species I'd never caught. I also felt at home with the people on the trip.	• I pretty much kept [my concern] to myself until five years ago (this was in Portland, Oregon) when I was at a shopping mall, and saw a Sierra Club booth. They had brochures, and I picked up on which had a membership form. I mailed in the form, and two months later I received a telephone call from the local branch of the organization asking me what environmental issues I was interested in. I was invited to attend a local leadership meeting, and from there I became the local coordinator on international environmental issues. I learned a great deal about environment while traveling overseas and taking natural science courses in college, but I find myself learning more as an issue coordinator.
• In those days the conservation movement. . . in this country was a small band indeed and if people thought you were doing good work your reputation spread quickly among the kindred souls around the Nation. Mine did and I soon knew well many of the leaders of the conservation movement.	
• I went to what happened to be the first meeting of Earth First! in Austin. I had found my group.	
• I would say I was 40 years old when I looked at an active environmentalist role seriously. The real introduction was through the friendship of hiking buddies in the Sierra Club Outings Program.	

Table 5.2.2, con't.

Theme Statements

- Later when I became aware of proposed logging on the hill facing my house ("my" mountain), I moved into action. I couldn't let down the environment again; I would do what I could to save what I loved. I joined a local group just forming called TREE (Thompson creek Residents for an Environmental Education). . . . Then a neighbor and friend, also a member of TREE, suggested I join the Sierra Club and run for the executive committee. Though I am not a "joiner", this invitation happened to come at a time in my life when I felt I had live too long alone on the mountain and needed some more social contact in order not to lose the ability to relate to people in my immersion with things natural.

MY EXPERIENCE OF ACTION

My story of action has all of the elements mentioned by the other environmentalists. The dynamics and sequence, however, are unique to my experience. I was influenced by as much by this project as any of the other factors. The insights to be gained be sharing my story are, I believe, worthwhile.

I was born near Las Vegas, Nevada, in 1962. I spent the first four years of my life there and in Los Angeles, California. I remember virtually nothing from that time except playing with baby chickens in my grandmother's backyard. The summer before I started kindergarten, we moved to Oregon. My parents later told me they felt it was extremely important that they leave the Los Angeles area before my sister and I started school. Their dream was for us to grow up in the country.

Although the first places we lived in Oregon were in the suburb of a small city (population: 20,000), after Los Angeles, it must have felt like the country. I had fields to play in, orchards of trees to climb, a river with sloughs to explore, and mountains less than an hour away where my parents would take us for picnics and hunting trips. Nearly every memory I have of my elementary school years revolve around these, and other, natural environments.

I was a classic tomboy. I would much rather play outside in the barn or pasture than in my room. I loved the 'creepy crawlies' that abounded in the area. I was constantly bringing home wiggly frogs, slithery snakes, great—big—huge spiders, bugs, worms, and slugs, stray cats, baby anythings: it didn't matter, as long as I found it and it wasn't too mean. Dad thought they were great; I could usually count on him appreciating whatever it was I had found (except the cats). My mother also seemed to welcome these things with what I thought was tremendous enthusiasm. She later told me that she had to muster every ounce of strength she possessed to keep from running, screaming, from the house when I brought home my bounty. Instead, she calmly took a jar or container from a kitchen shelf and held it while I laid a soft, grass bed at the bottom, punched holes in the lid and placed my treasures inside. I knew I couldn't shake a snake in her face (I doubt

anyone actually *likes* to have a snake in their face...), but I never knew they actually terrified her. I always assumed that when when she told me I had to let the creature go after a few days, it was because "it's not right to keep a wild animal in a cage (or jar, as the case may be)", not because she couldn't stand having the thing in her house any longer. I didn't find all these things out until I was 13 or 14 years old and my little brother (ten years my junior) began to follow in my footsteps. Since Mom knew I could help him with such things, she no longer felt compelled to hide her aversion. When I asked her why she tried so hard to hide these feelings from me, she said she didn't want me to grow up to be afraid of those kinds of things. She felt this was a handicap and she wanted me to be free to choose whatever path I wanted. She also thought it was important that my sister and I use our imaginations. To help develop our abilities to dream and imagine and create, she often took us into the natural world on outings and picnics. We would play games and invent stories; all in a natural setting. This ability has influenced me in so many subtle ways, I am often unaware of its action. But it has helped me throughout my life in everything I do.

My dad also had an important impact on my love of nature. When I was young, his job allowed him to do a lot of hunting and fishing. Sometimes these were family affairs, sometimes it was just him and me. He took us to some of the best places! A 'best place' is anywhere you can find things to explore and catch: places with big trees, rotten logs, backwater pools, hidden meadows, and deer trails that lead nowhere and everywhere at once. He taught me how to be quiet when hunting and listen to the forest sounds. He taught me how to be patient and still when fishing. And perhaps most important, he never set limits on what I was capable of doing. By this I mean that he never told me that I couldn't do something because of some inherent limitation (eg., because I'm a girl). When I wasn't allowed to do something, it was usually because it was unsafe or too physically demanding. I can still vividly remember the first time I went steelhead fishing with him. It was miserably cold and raining as we floated down the river, and I probably complained quite a bit, but he made me stick with it until I finally hooked a huge steelhead. He could have taken the pole from me and made sure that the fish made it into the boat, but he didn't. He calmly told me what to do and I managed to catch enough of it through my excitement that I

landed the fish. It seemed to be as big as I was. Part of me felt guilty that it had to die but another part of me felt proud because I had accomplished what for me was a nearly impossible feat. Although he didn't specifically talk about the balance of nature or our responsibility to the Earth, my father was able to help my connection to the Earth grow because he took me to places where my natural tendencies could take over and flourish. He also helped give me the self—confidence and belief in my abilities that have enabled me to pursue any goal I choose.

My parents' influence on my path toward environmental action has been two—fold. They encouraged my in—born interest in nature by raising me in a country setting and taking me to natural places as often as they could. The fact that I always seemed to be interested in nature, from the time I could crawl, was mentioned by both of my parents. Where this tendency comes from, I cannot say. Perhaps it is something all children have, that closeness to nature. And second, they instilled in me the confidence and creativity that have allowed me to pursue my interests with great determination and potency. When these interests later turned to protecting the environment, I never questioned my ability to make an impact.

School did not seem to ever have much of an effect on my tendency toward nature. The only thing I can specifically remember in a week—long outdoor school I attended in the sixth grade. But this seemed more to be an extension of my own inclination to be most at home in nature, than a revelation of the wonders of the Earth. Even in high school, my classes were very traditional. They focused almost exclusively on conveying the facts and theories I would 'need' for college. I had no outdoor experiences associated with high school.

As I grew older, I remained close to nature. In high school, I began to spend more and more time alone, walking along the river or in the pasture. I collected rocks, and watched the water beings as they scurried about in their little worlds, oblivious to my presence. I felt more at home in these places than anywhere else. Here I could be myself; I didn't have to worry about the pressures every teenager feels. The natural world was my home and I turned to it for solace as often as I could. As I reflect on my childhood, however

My last year of high school I had to decide on a degree program for the next year at Oregon State University. All of the possibilities I was considering dealt with the environment in some way. I thought for a long time about being a veterinarian, until I experienced the death of my horse's first foal. It was a painful and extended illness and I didn't want to watch animals die for a living, even though I knew that a veterinarian also saves many lives. I then turned to forestry and wildlife management. I loved the thought of having a job where I could spend long hours alone in the forest. Maybe I realized this was a romanticized view because I finally settled upon zoology. Animals had always been my first love and this degree program seemed to offer non-stop exposure to animals.

At Oregon State University I got my first glimpse of a utopia of the Earth. A friend gave me a book called Ecotopia by Ernest Callenbach. It described a scenario in which the states of Washington, Oregon, and northern California secede from the United States in order to set up a society that takes "ecological thinking seriously". The people of this area develop stable—state systems for their economies, agriculture, forests, schools, jobs, health care, governments, and personal lives. They based their society on ten principles:

1. No extinction of other species.
2. No nuclear weapons or nuclear plants.
3. No manufacturing of carcinogenic (cancer—causing) or mutagenic (mutation—causing) substances.
4. No adulterants in foods.
5. No discrimination by reason of sex, race, age, religion, or ethnic origin.
6. No private cars.
7. No advertiser—controlled or broadcast television.
8. No limited—limited liability corporations.
9. No absentee ownership or control —— one employee, one vote.
10. No growth in population. (Callenbach, 1981:36—38)

All of the principles and technologies Callenbach describes are completely feasible at the present time. It is a society of gentility, honesty, comfort, and quiet respect for all forms of life. This book brought me something I had been looking for all my life but never knew I needed. It brought me a vision of a world where all people felt as I did about the environment. Although my feelings had never been articulated as 'environmentalist', I knew immediately, as I read that book, that this was the way the world should be. It just didn't make any sense to have it any other way.

I have returned to this book and its prequel, Ecotopia Emerging, often in the past eight years. It was especially comforting when I felt the pressures of an ecologically—ignorant society press in on me. For several years after finding this vision, however, that was the extent of my involvement with the environmental movement. As I look back now, I can see that this was a time of consciousness—raising. My connection with the Earth was strongly established. I had a vision of how the world *could be*. I was becoming more and more aware of how it actually *was*. And, for the first time, I was having spiritual feelings for the Earth.

I was experiencing these feelings because I was experiencing some of the most beautiful, natural environments the state of Oregon had to offer. Most of the trips were associated with a course I took in my third year at O.S.U. called Herpetology (reptiles and amphibians [snakes, lizards, frogs, and salamanders]). These trips were rites of passage: those who successfully completed a field trip would be accepted into the inner circle of herpetologists at Oregon State. (For some reason, this was especially appealing at the time, even though acceptance really meant nothing more than being able to go drinking Friday afternoon with the profs and grad students!) But, they were too wrapped up in the study of 'herps' to really pursue environmentalist—like activities. The main influence these people had on my decision to become an environmentalist was through the places we went to find the herps.

Most of the trips centered around the southeastern corner of Oregon in a high desert called the Alvord Basin. It was skirted on all sides by old, rounded mountains and fault block formations. It looked completely barren the first time I saw it, but I soon learned that the life that has evolved there is rich and diverse. The days were dry and fiercely hot. But the nights . . . the nights are what

truly touched me. The sky was cool and clear with a million stars and the sounds were mystical and comforting. They were sounds from another time, another world where coyotes still sing and great grey owls call.

At night, after spending the day chasing snakes and lizards, we would drive to one of the many natural hot springs in the area. Since the nearest town was over two hours away, these springs were completely undeveloped; the water simply bubbled out of the ground and formed a pool. My most profound memory of those trips was from one of these hot springs. It was a little before sunset and the day had been particularly hot. The hot spring we chose was called Willow. It sat at the edge of a grassy hill that overlooked a small valley filled with sage brush. As we sat there, we watched a rain cloud form at one end of this valley. It moved slowly toward us, drenching everything in its path. Well before it reached us we could smell the sage in the wet air. The sunset of orange, purple, red, and yellow provided an incredible backdrop for this little storm. When the storm finally reached us, huge, cold drops of water began to hit our faces. All of these things combined to produce a very spiritual experience: I was oblivious to the people around me. There was only me and this wonderful experience that filled me with such longing and joy, I felt completely overwhelmed. At that moment, I was no longer alone. I knew this beautiful world was a part of me and I a part of it.

My spiritual experiences with natural places continued for a year and a half. The summer before I began my course work at the University of Alberta(1984), I accompanied my boyfriend on a trip through northern British Columbia, the Yukon, and Alaska to collect insects for his thesis research. These were the most untouched, primal places I had ever seen. For the first time, I had a true sense of the natural state of the Earth; how it must have looked before human beings began altering it. My feelings were truly cemented that summer.

Once in Alberta, I joined several national and international environmental organizations (Friends of the Earth, Sierra Club, Environmental Action, and the National Audubon Society), mainly so I could get their literature and magazines. At this point, I was still four years away from being actively involved with an environmental issue. During those four years, however, I was learning:

I was reading every article of every magazine I received; I literally devoured them. I was beginning to read books on environmental ethics and philosophy. I was trying to change my life style by boycotting certain items that contributed to degradation of the environment (eg., I wouldn't buy certain kinds of tuna because the tuna fishery was killing so many dolphins in their catches).

As I mentioned in Chapter One, I participated in a course taught by Dr. Aoki in the spring of 1985. This course and Dr. Aoki's influence helped guide me toward more reflective and philosophical ways of thinking. The effect was to open my mind to things my heart already knew. It brought me out of the strictly scientific mode I had learned so well at Oregon State and steered me in the direction this thesis exemplifies. Although Dr. Aoki is not an environmentalist, he was the first of the mentors who affected my decision to pursue the path of an environmentalist. He did this by introducing me to the alternate forms of knowledge that are so important in understanding the cause of environmental damage. He taught me how to listen to my heart and not doubt the things it had to say about understanding the world.

Once I began to understand that there were other ways of knowing about the world, my advisor, Dr. Samiroden, began to fill in the knowledge. Through many long and patient talks, he helped me explore the issues associated with the environment, science—technology—society, and education. Realizing that the knowledge a person discovers on his or her own is knowledge that has meaning for that person, Dr. Samiroden would make suggestions or ask questions that would, metaphorically, open doors to rooms of ideas which I would explore. As soon as I had grasped some of the knowledge to be found in one room, he would guide me to the next. The effort and learning were mine, but my explorations went much further because of his direction. Often, my activities were only tangentially associated with my thesis work. Yet, he patiently encouraged most of my detours, insisting that *education* cannot be limited to a classroom or a 'program'. He is truly a master teacher, and the second of my mentors.

Much of what I was reading at this time was reinforced by observations of my own behavior: people will not always act on an environmental issue just because they know about it. This was confirmed by my students in an environmental biology course I helped teach at the university.

They were expressing the same feelings described by the students in this study: helplessness, anger, and sadness. It was conversations with these students that helped direct me toward the topic for this thesis.

For almost a year, I seemed to exist in a state of limbo with respect to action. As I look back, I can see that it was actually a very active time. All of the things I had been learning began to meld into the drive to act. I was talking to more and more people about environmental issues. I was reading voraciously. I was learning what people could do to take action on an environmental issue. I had talked with the teachers about environmental education. I was receiving letters from environmentalists in response to my study. Everything was falling into place in preparation for my own decision to act. At the time, however, I felt as though I were being irresponsible. I was reaping the benefits of the power I felt from learning about the environment but I wasn't giving anything in return. Then, in March of 1988, I started to move.

It seemed simple enough. I didn't even know I was moving into action until the process was well on the way. It began with two meetings. I had asked several of the local environmental activists to help me contact some more activists in the Alberta area. One of them invited me to a work meeting they were having. She said I could tell the people there about my study and distribute my requests. For some reason, I thought they would be a tight, closed clique. So I was very pleasantly surprized to find these people were so warm and friendly and interested in helping me! They welcomed me into the room and gave me letters to fold and envelopes to stuff and we talked about my study and their activities. I even took some of the flyers with me to distribute in my department. The other activist who agreed to help me suggested I come to an open house they were having at the Provincial Museum so she could give me a list of names and addresses. The open house included other environmental groups and she introduced me to several of the other people that were there. It was wonderful! Here were people that were actually doing something about all the problems I had been reading about. Before long I found myself asking one of the people if there was anything *I* could do! I can still hear myself, "I'm working on my thesis, so I don't have much time, but I'd like to help, if there's something I can do that doesn't require very

much time." I know now that there's always something that needs to be done, so before I knew it, I had volunteered to write a pesticide fact sheet for a group call the Toxics Watch Society.

When I think back on those first two meetings, I realize that it was the people I was responding to, not the issues. They welcomed me into the inner circle of people who care enough about the environment to act. Until that time, I felt like an intruder, like I hadn't proven myself, like I didn't have some mysterious right to be an environmentalist. What I didn't understand was that I didn't have to prove anything but my willingness to participate. By simply showing up and asking what I could do, I had passed the initiation rite. As the other environmentalists indicated, finding these people felt like finding my niche. It was a small step toward my vision of Ecotopia.

I immersed myself in the environmental community of Edmonton. What started out as a request for a small project turned into a baptism by fire. Within a month of when I first met these people, I was writing press releases, helping set up press conferences, attending strategy meetings for legal action against polluters, and helping run a toxic household chemical round—up. There was so much to be done and so few people to do it, that I was soon committing my time without a second thought. The thesis came to a stand still. But I knew that what I was learning through these experiences was the essence of my thesis. I knew it would contribute in the end.

Part of the reason I was able to contribute so much to Toxics Watch that summer was because I had some knowledge of the pulp mill issue. My father's construction business focuses primarily on wood products mills. I was able to consult with him and use my own knowledge to evaluate the quality of the pollution control devices these proposed mills were scheduled to use. I was also able to use my zoology degree to evaluate the environmental impact assessment reports the companies produced. Even with this high level of background knowledge, I had to learn more that summer than I ever had to learn for a course at university! What became important was not necessarily how much I knew but if I could find out more: I had to know *how* to *learn*.

Because I was thrown so quickly into the middle of activism, I had little time to catch my breath and think about what was happening. It was exhilarating and I was having a blast, but I soon felt overwhelmed by it all. This was especially evident when I returned from a two—week visit to

Oregon. So much had changed! Everything was moving so quickly. I felt like the issues were becoming more important than the Earth they impinged upon. At this level of reaction, the issues always came down to politics. I was beginning to understand why so many of the people I worked with talked about burnout. And I was beginning to realize that if I didn't do something to attend to these feelings, I would not be able to continue.

For me, the answer came when I found the Mother Earth Healing Society and was invited to participate in a native healing circle. This circle uses the traditional native talking circle format to allow people to talk and heal their hearts. It was my first introduction to the practice of native spirituality. Because it is so experiential, it is difficult to describe, but the basic premise is: if we wish to heal the Earth, we must first heal ourselves. I have included the text from a brochure I helped prepare for the Mother Earth Healing Society in Appendix C. It gives a summary of the purpose and approach of the society.

The woman who began the circle, Lorraine Sinclair, became my third mentor. She is teaching me many things, but the most important is faith. This is what I was losing before I found the circle. My vision of a better world was beginning to fade under the barrage of problematic issues I was facing. She has taught me how to hold on to that vision and help bring it about through *pro—active* work in the environment. She also taught me that I could express my feelings of love for the Earth without apologizing. They are emotions of great strength that keep the hopelessness at bay. This is the source of a positive outlook that is so imperative in this work.

Although none of the other environmentalists spoke of the need for a spiritual group like the Mother Earth Healing Society, burnout was mentioned several times. My experience tells me that this comes from a failure to integrate our mind, body, and spirit in the fight to save this Earth. The native teachings tell us that the mind and the body and the spirit must work together to create a whole person. The mind is who we *think* we are (ego), the body represents who other people think we are (behavior), and the spirit is who we really are (soul). By combining our mind and spirit to direct our bodies, our actions demonstrate how well we have integrated the three aspects of a whole

person. If we concentrate on any one of the three, our paths are crooked and veer from the Good, Red Road.

Before I met Lorraine and joined the circle, I was using my mind almost exclusively to direct my actions. I was ignoring my spirit, so I was beginning to weaken. Because my strength comes from the connection I feel with the Earth (my spirit), I was not able to draw on that strength to carry on the fight. Now that I am learning to balance these three aspects, I very seldom feel the same overpowering frustration I felt before. When I do start to experience such feelings, I know what I must do to re—balance myself. Although I found a way to do this through native spirituality, there are other ways to find this balance. It is simply a matter of recognizing and accepting that we have many different aspects to our being. If we focus exclusively on one, the others are neglected and create disharmony.

My path continues. And, although I am exploring the spiritual aspect of myself at the present time, I have not abandoned my mind. I am still able to step into the role of empirical scientist: sometimes to evaluate and critique the actions of other scientists, sometimes to make arguments to those who cannot be reached on an emotional level. I have decided to devote my self to environmental work. My mind and my body and my spirit have given me no alternative. The Earth has made the choice for me.

SUMMARY

The four views represented here have provided the paint with which to create a picture of environmental action. But this picture, like any creative effort, is entirely dependent upon my input as the instrument of a vision. I have seen the stories these people tell through my own story. I have interpreted their experiences from my perspective. Although my perspective is specific to my experience and background, it is not entirely unique. Many of the participants I talked to and much of the reading I have done support such a view. Their interpretations may vary slightly, but the ultimate message is the same: We are all connected to all life on this planet and we must use that knowledge to direct our actions. These four views have many commonalties and nuances that help make the picture of environmental action a rich and dynamic one. One which holds many implications for encouraging environmentally responsible behavior in our children. The next chapter looks at this synthesized picture and the implications it contains.

CHAPTER FIVE CONCLUSIONS, APPLICATIONS, AND IMPLICATIONS

Speak to the earth,

and it shall teach thee.

Job 12:8

CONCLUSIONS

The purpose of environmental education is to encourage environmentally responsible behavior. To be sure, knowledge and skills are components of this behavior. But other factors contribute to such behavior and must be recognized and explicitly incorporated into an environmental education program. In fact, this study suggests that these other factors may be more important for encouraging environmentally responsible behavior than traditional components. The first section of this chapter presents the synthesis responsible for this suggestion and compares this new view and the findings of Chapter Four with the model of factors impinging on environmentally responsible behavior initially presented in Chapter One.

Encouraging Environmental Action: A Synthesis of Four Views

Connection to Nature

I place this theme first because it was universally expressed by the people from the four views. All of the teachers acknowledged the necessity of outdoor field trips for environmental education because they takes advantage of the children's natural affinity for the environment. The students were emotionally attached to the environment and wished to protect and preserve it. The environmentalists wrote with great fondness and wonder of their relationships with nature. And I have always felt more at home and at peace when in the natural world than anywhere else.

The idea that people have a natural connection to the Earth is not new. It has a long history of explanation and justification ranging from evolution to aesthetics. Common sense tells us that human beings are connected to the Earth if for no other reason than that we would die without her. She provides food, shelter, and clothing. But, our connection to the Earth involves more than the strict, survival—driven appreciation of the Earth's gifts. The students demonstrated this quite clearly in their responses: it involves a connection not unlike that we feel with our family members and loved ones. There are elements of love, caring, emotional understanding, comfort, trust, protectiveness, protection: all the feelings normally associated with a functional family.

As with some families, though, this connection can become strained and abusive. When this happens with human families, the solution is therapy: an exploration of the attitudes, feelings and emotions that lead to the abusive behaviors. It seems only reasonable, then, that similar activities might help improve the human relationship with the Earth. In other words, we must be willing to enter into therapy with the Earth. Obviously, the Earth cannot verbally respond to such therapy. This is why we must learn to listen to the things the Earth has to say with our hearts and not our ears, just as children are able to 'tune—in' to the prevailing currents in a dysfunctional family (even if outward behavior is within the realm of normality), and adjust their behavior accordingly. They have a natural empathy with the Earth. They listen with their hearts and their bodies, and they know what the Earth tells them.

This is the first of the factors which we must accept and develop if our environmental education programs are to accomplish their goal. That the environmentalists, including myself, spoke with such reverence and affinity for the Earth demonstrates that this is an important component of environmentally responsible behavior. Teachers must be able to demonstrate to their students that such feelings are acceptable and desirable. They must become Earth therapists for their students.

Mentor Relationships

As wise and trusted teachers or counselors, mentors provide a perfect channel to conduct this Earth therapy. The environmentalists exemplify the power and importance of such people: a

mentor is one of the elements these environmentalists identified as essential to their decision to act responsibly. While the mentor(s) may not have extended contact with a person (eg., Dr. Aoki in my story), there are several characteristics which typify such encounters.

First, the mentor changes the way the person looks at a problem, issue, or idea. This can be so subtle the person sometimes doesn't realized the effect until many years later. Or it can be through gentle, respectful, explicit teachings. Both forms of this characteristic of mentoring were described by the students, the environmentalists and myself.

This leads to the next characteristic: there is an empowering relationship between the mentor and the student. This does not mean that they must view each other as equals, but that they must respect and appreciate each other. Often, in present teacher—student relationships, the teacher possesses (or demands) the respect and the appreciation of the student with very little reciprocity. Both aspects were demonstrated by the teachers. Some seemed to have little respect for the students' ability to direct their own learning. Others developed empowering relationships with their students which resulted in increased action and interest in their environmental courses.

The third characteristic of an environmental mentor is the modeling of environmentally responsible behavior. Again, this can be through simple demonstration and observation or the mentor can actively draw the student into emulation of the behavior. The teachers described both processes, as did the environmentalists and myself.

The most important thing to remember about a mentor relationship is that it builds the student's self—esteem. The mentor accomplishes this by validating the student's feelings, both good and bad, and helping him or her learn to use them in constructive ways. The mentor also teaches in such a way that the student learns how to learn for him or herself with little intervention from the mentor. This builds the student's confidence that he or she is able to accurately interpret reality. Finally, the mentor also increases the student's self—esteem by holding the student in high regard. This is the respect mentioned earlier. It conveys to the student that he or she is a valuable and capable person.

The Role of Knowledge

Knowledge of the environment must be redefined. It must be based on the use to which it will be applied rather than the esoteric concept of 'more is better'. By this I mean that knowledge only has meaning if it has use. If a person has enough knowledge to be able to make sound environmental decisions, then that person knows enough about the environment. I am not suggesting that further studies not be pursued, but those studies must be driven by the student's desire to know more, not by some artificial concept that states that a person must know all there is to know about a subject before they can make good decisions. When a person wants to know more about an issue, then the knowledge has use to him or her, and further studies should be pursued. But there are many people out there, as some of the environmentalists and most of the students demonstrated, who have a general grasp of the issues surrounding environmental problems. These people must not be denounced for not 'knowing more'. To do so only generates doubts in their own abilities to interpret reality. This is especially true when the decisions a person makes also have an emotional component (ie., they are based on knowledge and 'gut feeling') As my own experience showed, people learn what they need to know, when they need to know it. This is why it is so important that students be taught how to learn, rather than what to learn.

Environmental Groups

This final aspect of encouraging action revolves around the fact that people need to be supported in environmentally responsible behavior. Some of the behavior that can be considered responsible can be done alone, in people's own personal lives. But to actively protect the environment, people must act in groups. All four of the view points reflected this need. The teachers felt their students needed the interaction and strength that come with group activities. It was also the teachers who had been involved with environmental groups who demonstrated the most confidence and hope in their students. The students expressed the most hope for solving the Earth's problems through banding together with other people who care. Almost all of the environmentalists indicated that their actions were dependent on the support found in an

environmental group. And my own decision to act didn't begin until I met other people who were actively involved.

In many ways, the power these groups possess comes more from the banding together of like—minded people against a common goal than from the numbers of people involved. It is the support aspect that engenders action, not the mass of bodies. Because of this, the concept of environmental group can be applied more broadly and incorporated into the classroom. Carefully directed by a mentor, a group of students can achieve the same effects that are characteristic of an environmental group: support, camaraderie, and power. Even if the fights are lost (as often happens in real environmental groups), the groups' cohesiveness helps build a barrier against the despair.

Summary

Taking all of these factors together, the picture we see of encouraging environmentally responsible behavior is as follows: A person must have a recognized affinity for the Earth and the life processes that define her. He or she must have key experiences of interaction with a mentor or mentors who develops his or her affinity and abilities. There must be a re-definition of the role of knowledge in environmental education. And there must be some sort association and support from a like—minded group of people. The order in which these elements appear is generally the one given, but the individuality of every person means that there can be variations. The teacher—student relationship is conducive to all of these elements.

Comparison With the Model From Chapter One

The Environment Becomes an Active Element

The model from Chapter One suggests that the environment enter into the picture of student action as the object of that action. The findings from this study suggest that the environment acts actively on the student's perceptions and emotions to generate action. Furthermore, that effect is an essential part of the student's decision to behave responsibly.

The Perceived Threat to the Environment Must Contain an Emotional Component

The model also suggests that the students will perceive the threat to the environment through the knowledge they learn in the classroom. But intellectual knowledge alone will not generate action. The threat must also be conveyed on an emotional level. In other words, the student must be able to relate to an issue on a personal level. It must have some intrinsic importance to her or him.

Knowledge of How to Take Action is Less Important Than the Desire to Act

None of the environmentalists mentioned knowing how to act before they decided to act. My situation may be unusual since I was studying environmental action prior to acting. But my own experience also supports this finding because I *did* know how to take action, and yet I did not act until all of the elements mentioned above were in place. Just as with knowledge of the issues, people seem to find out how to take action when they decide to act. It is dependent only on the individual's creativity and courage. These are the skills that should be emphasized.

Students' Emotional Concerns Must be Supported and Validated

In addition to supporting the students' right to take action (empowerment), the parents and environmental educator must help the students learn to express and cope with their feelings of anger, sadness and hopelessness. Obviously, not all students will feel this way, even though a majority of the students in this study expressed such feelings. But for those that do, their mentors have a moral responsibility to help them learn to direct these feelings in constructive ways.

APPLYING THE FINDINGS: A MODEL PROGRAM

The following program is included to show how these findings can be applied in a classroom setting. There are programs in existence today that use similar approaches (eg., Earthkeepers by the Institute for Earth Education). More are being developed. I have chosen to include this one

because I am most familiar with it and it includes all the elements of good environmental education as defined by this study.

Based on integrating Native natural science concepts with the junior high science curriculum, the Cross—Cultural Environmental Education Program (CCEEP) is currently under development by the Mother Earth Healing Society. It seeks to use traditional Native teaching methods to impart these science concepts. Native people view education in a much more integrated manner than our current educational system demonstrates. Because of this, their science concepts (ie., their understanding of how the universe 'works' and how they 'fit in') are taught in conjunction with the values and ethics the society reveres. This is reflected in the National Indian Brotherhood's "Statement of the Indian Philosophy of Education" (1972). In it they state that they want their children to learn pride in one's self, understanding of one's fellow people, and living in harmony with nature. There are no separate subjects; all knowledge is life knowledge to be used. Therefore Native science knowledge is not esoteric, it is knowledge that teaches lessons about how to live a good life. Morrison describes it this way:

> As with all other facets of Native science, the beginning, the process and the product are all one called relatediveness. Before the process can begin, a Native scientist must understand his/her place in the relationship....Tribal people express this in different ways, but as a Haida, I understand a person (in relation to all other creations) as being dependent upon all other things and none of them dependent upon me. If I, the human race was to disappear this moment, there would be no animal that would starve or die, nor any tree, rock or any other of the creations affected. However, if they disappear, I am also gone. Seeking truth and coming to knowledge necessitates studying the cycles, relationships and connections between things. Indeed a law of Native science requires that we look ahead seven generations when making decisions. (1987)

Because this knowledge affect all aspects of their lives, it is extensive and sophisticated. But again, it must be judged on its own terms. Native science concepts must be viewed in the context in which they evolved. They must also be evaluated on the basis of the effects this knowledge has on their lives and their relationship to the Earth. These are the same criteria that this study suggests must be used to evaluate the level of a student's knowledge about the environment.

Much of the pilot work for this project has been conducted by Lorraine Sinclair. She has been called in as a guest speaker for many classrooms across the province of Alberta. During her

presentations, she uses several traditional Native teaching methods to convey some of the Native science concepts to the children. While the concepts she teaches are important, the methods are the aspect that receive the most support from this study. They demonstrate how the findings of this study can be applied in a classroom setting, even if the time is very limited.

Ultimately, the program seeks to involve the Elders of the local Native communities to introduce this knowledge to the school. The teacher's job, then, will be to help the students further integrate the teachings of the Elders with the teachings of modern science. The teacher may also be able to begin using some of the methods of the Elders in the classroom.

The parents are also an integral part of the CCEEP. Through a Parent Advisory Committee, the community will be able to contribute and comment on the progress of the program. By actively incorporating the parents in the planning process, many of the problems voiced by the teachers in this study should be addressed. Instead of threatening the teachers' positions, parental grievances will be given a proper forum. Again, traditional Native group dynamics will be used in this process as well.

Based on the pilot work done by Ms. Sinclair, the following features of the program are supported by the findings of this study:

1. The program introduces the students to alternative ways of knowing about the world. This supports and validates their own experience in interpreting reality. The Native science concepts are much more intuitive and wholistic than modern science. They resemble quite closely the students own interpretation of the world, especially at the young grade levels. For instance, the teachings of the Wheel of Life describe human life in reference to a circle. As this circle is described, the children often end up completing the elements as the teacher talks. They become very excited to find that their own perception of the world has been validated.

2. The teacher uses a mentor approach in the classroom. Oral teaching and pictographic representation is imperative. Note-taking is strongly discouraged or not allowed. The teacher encourages the students to *listen* (one of the primary values of Native culture), telling them that they will remember what is important for them to know. This not only gives the students confidence in their ability to retain the knowledge that is important to them, but it shows them that the teacher respects and believes in their ability to direct their rate of learning. Teachers of this kind command respect from the students without a word; the students know this is a person to be respected by their attitude and approach.

3. Sometimes, the teaching methods involve a talking circle. This process is, perhaps, the best way to express and work through the feelings of anger, sadness and hopelessness these children sometimes feel. (It is the circle that saved me when I felt overwhelmed). A stone or stick is passed around the circle. As each person takes it, he or she has the right to

talk for as long as needed to work out his or her thoughts and feelings. No one else is allowed to interrupt. And the things that are talked about are not allowed to be discussed outside of the circle. This circle does several things. First, it give the students an excellent forum for coping with their feelings. Second, it helps them learn to articulate strong emotions: good training for environmental action. And Third, it helps generate group cohesiveness through mutual trust.*

4. The teachings and outings sometimes associated with this program allow the students to experience their connections to nature as sacred and mystical, again, reinforcing their own perceptions. In one example, Lorraine teaches the students about the connections we have with trees. She talks about the things trees can teach us and how we can learn those things. She tells them about the spirit hole each tree has and how the students can find it. The students love this. They all try it when they return home. What is important with this feature is that the children are able to experience nature in even the most urban of settings. It is not even essential that they go outdoors within the context of the classroom. When it is presented in this way, the children do the 'work', willingly. Who are we to judge the validity of such teachings, especially when our 'modern' science continues to 'discover' things the Native people of this continent have known for thousands of years? Furthermore, this connection really does not contradict the teachings of modern science. It is an added dimension.

While this program is still in its infancy, all of the methods and some of the knowledge components have been field tested by Ms. Sinclair. The results of this work are very exciting. She reports an attentiveness, respect, and acceptance by the students that many teachers desire. And, although the CCEEP focuses on junior high science at this time, it has potential for all grade levels. Perhaps most important, though, this program offers a way to integrate values and ethics with the science curriculum. Because these values are presented as an integral part of the knowledge, the students begin to see science as a moral activity as well as an intellectual one.

IMPLICATIONS

The findings of this study obviously have many implications for the present educational system. Many of these implications have been mentioned previously. There are some more specific suggestions that should be made here.

Implications for Teachers in the Present School System

Re—evaluate the Power Relationships With Their Students

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* It may sound like a 'pipe dream', but I have seen this method demonstrated and Lorraine has confirmed that the students *do* respect each other and will not talk about the things said in the circle.

In order to apply a mentor approach with their students, many teachers will need to explicitly evaluate the power structure of their classrooms. Do they demonstrate respect for the student? Are they modeling egalitarian and environmentally responsible behavior? Are they acting as facilitators of learning rather than directors? Do their actions seek to increase the student's self—esteem? These are just a few of the questions teachers must be able to ask and honestly answer for themselves. Obviously, for some teachers, this will be a new way of looking at the teacher—student relationship. It may be necessary, therefore, to provide training and counseling for the teachers learning this new approach.

Use the Students' Natural Interest in Environmental Knowledge Sources

This relates to the findings from the student interviews. Because they all mentioned media (TV, newspapers, magazines, etc.) as their primary sources of environmental information, the teachers should recognize the potential these sources hold for environmental education. In many cases, these sources, especially television, can be used as the primary source of information about environmental issues. This would allow the teacher to focus more time on the intuitive, interactive approaches that facilitate a mentor model. Again, the teachers may need training or at least guidance in using these sources. The resulting increase in students interest, however, should justify these efforts.

Strive for More Student Exposure to Nature on an Experiential Level

Because the students receive so many benefits from relating to nature on an experiential level, teachers should always strive to incorporate such experiences into their programs. As the CCEEP demonstrated, however, this need may not always mean scheduling a field trip. Many encounters can be conducted in the school yard or by the students at home. While there are many teachers who currently use school yard excursions in their classrooms, these are generally associated with intellectual activities (measuring, observing, collecting, etc.). The findings of this study suggest that some of these outings should be directed toward allowing the children to interact with the

environment on an emotional, experiential level. This does not mean 'letting the kids go', but taking them through directed, personal encounters with their world. Once again, some teachers may need guidance with initiating such activities.

Encourage Cooperative Relationships Between the Students

Obviously, encouraging cooperative relationships between students is not a new suggestion. It is integral to the peace education programs that have been developed. But this cooperation does more than foster peaceful interaction between the students. It facilitates the group cohesiveness that seems to be important in environmental action. The students' desire to have someone listen to them and to be able to work with other people to heal the environment would be supported by such cooperation. It gives them a support group to which they can turn if their feelings become too difficult to handle alone. There are many ways this cooperative atmosphere can be encouraged, but the simplest seems to be to reduce the competitive nature of current marking practices. This would involve developing alternative marking systems that stress the formative rather than the normative nature of education. This suggestion would require extensive re—education of the teachers. But it also requires a re—structuring of the current educational system.

Implications for the Current Educational System

Re—structure the Current Environmental Education Curriculum

The current Alberta Education Environmental Education Curriculum Guide (1983) gives an excellent display of the department's position on environmental education. Their values are evident even from the cover they chose for the manual: a man—made glass and steel skyscraper takes center view with natural elements as peripheral addenda. Inside, however, the approach to the curriculum is even more firmly entrenched in the current societal values. The introduction tothe manual states:

> Education *in and of* the environment can and should include some on—site study where the two—dimensional world of theory gives way to practice and investigation in the three—dimensional arena. This out—of—school component, while very important, should not

> become distorted by the mystique or excitement with which it may be associated. Further, it should not be the entire basis of any program. (1983:1)

In other words, even though it really turns the kids on, we shouldn't use their natural interest in the environment to motivate their interest in the environment!

The Department of Education has also developed a model of the integration of environmental education between the different subjects and between the grades. While this attempt at integration is admirable, they have emphasized the components in the exact opposite order from that indicated by this study. They have placed knowledge as the central component to which the most connections are made. Skills, abilities and processes are next in importance, receiving fewer interconnections. Finally, values and attitudes are displayed with *no* connections demonstrating how the strands will contribute to their development! As the manual explains: "Values and attitude are descriptions of what it is *hoped* the students may internalize or come to feel as a result of the investigations in which they have been involved," (1983:2; italics mine).

This manual acknowledges the importance of values and attitudes, but it seems unwilling to incorporate them into the curriculum. Whether this is because of the difficulty associated with accomplishing such integration in the current system or the recognition that it would promote the values of the New Environmental Paradigm, is difficult to determine. The effect in either case is to leave the most important aspect of an environmental education program in the realm of 'implicit limbo'. It seems likely that this curriculum guide was developed to pacify a call for assistance from the department by those teachers facing the monumental task of educating for environmentally responsible behavior within the current system.

Allow for More Outdoor Experiences

This follows naturally from the situation described above. By allowing for more outdoor environmental exposure of the experiential kind, the school system will facilitate the teachers' attempts to improve their programs. Obviously this will be countered with the argument that there isn't enough money to do this. In response, I would argue that it is a matter of re—evaluating the

priorities used to allocate the monies that exist. Clark is particularly instructive on the nature of this issue:

> Once we accept the assumption that mindset is irrelevant and unrelated to behavior, we are constrained to wait until something "out there" changes before we change our behavior. Thus, while most Americans decry the nuclear arms race, political wisdom requires that the other side must change first. While most Americans intuitively know that our growth economy is destroying the planetary ecosystem, economic wisdom insists that competition is the name of the game in the real world "out there." While there is no teacher or school administrator who does not long for substantive educational reform, the conventional wisdom insists that educational reform is dependent upon more money, better textbooks, and more initiative at the state and/or federal level.
>
> Once we understand the assumptions upon which this cultural mindset is based, this belief that change must come from "out there" is both logical and rational. Unfortunately, this kind of rational logic is becoming increasingly counter—productive. But it will not change until we identify the source of the problem, *the way we think about the problem.* (1988:54)

Re—Structure the Schools to be More Egalitarian

By reducing the administration of education, and increasing participation on all levels by the people actually involved in the educational process, the teachers and students, school systems could become more egalitarian. By this I mean that the teachers and students should take more control over the design and implementation of their educational programs. This recognizes the fact that every school, every teacher, and every student has an individual quality that must be respected. To imply that one curriculum will serve every situation is absurd. While most school administrations verbally acknowledge this fact, their actions, both collectively and individually, do not. Thus teachers are faced with proscribed curricula to teach, diploma exams to prepare their students for, and no time for the 'options' that are so essential. If the schools were to be run in a collective and consensual manner, with the teachers and students (and, possibly, parents) consulting in the preparation of curricula, the setting of policies, and the allocation of monies, there would be more chances to integrate environmental education in the manner described by this study.

Implications for Teacher Education

Focus on Developing Mentors Rather Than Producing Conveyors of Knowledge

While the teachers currently employed by the system would still have to be assisted, the best place to begin some of the changes suggested by this thesis is in the teacher education program. They should focus on developing mentor abilities rather than teaching methodologies and control tactics. One of the best ways for them to learn this type of mentoring behavior is through modeling. Teacher educators must become aware of the same factors described for the teachers, above. In addition, some of the approaches reserved for graduate students should be more widely used. For example, respectful conversational discussions (some of which, from my own personal experience, use methods similar to the Native talking circle) could be employed to help the student teacher re—evaluate his or her views of the power relationship in the classroom. In essence, then, teacher education programs should focus first on the relationship abilities necessary to act as a mentor.

Increase Self—Reflection and Self—Understanding

Increasing self-reflection and self-understanding is related to the previous suggestion. By encouraging the student teachers to reflect on their assumptions, biases, and preconceptions (ie., their world views or mindsets), they can begin the same process I experienced which led to my decision to take action. In the parlance of the graduate course, this process is called critical reflection and it enables the person to recognize where misconceptions and biases are creating disempowering relationships with their students. If this approach were incorporated into the teacher education program, the teachers it created would have some of the skills needed to apply the suggestions made in this study. In addition, this process of self—reflection tends to increase maturity: another essential characteristic of a good mentor.

Encourage Student Teacher Participation in the Design of Their Programs

Encouraging student teacher participation in the design of the teacher education programs would help facilitate the increase in egalitarian school systems. If the student teachers become familiar and comfortable with designing their own teacher education programs, they will be far more likely to incorporate such approaches in their own classrooms. It would also give them experience with consensual decision making in which the group reaches an agreement with which all members are content. This contrasts sharply with the democratic method of majority rules (in which up to 49% of the members can be opposed to the decision!)

Incorporate Environmental Education Concepts and Values Into All Subjects

If teacher education programs begin to use the environmental education model as the central theme for their individual subject area specializations, the integration will become much easier. All subjects can be taught from this perspective, since human beings and their environment are so inextricably interconnected. The statement by the National Indian Brotherhood helps put this in perspective: education should help children learn pride in one's self, understanding of one's fellow people, and living in harmony with nature. None of these can be removed from the context of educating a human being. Separating them into individual subjects is artificial at best, detrimental at worst. Environmental education in the mode I describe in this study would go a long way toward achieving this much needed integration.

RECOMMENDATIONS AND REFLECTIONS

As I look back on the course this study has taken, I see many ways in which it could be improved or expanded. Perhaps most importantly, the interviews should have included validation sessions. The results from such validations could have revealed nuances completely lost in the general approach I was forced to take. I also see a great deal of potential that is, as yet, untested in a typical classroom. It seems essential, therefore, that the suggestions made here be implemented as part of the validation process. Finally, these approaches must be followed to judge their effectiveness. Because these suggestions are based on the experiences and reflections of the people affected by environmental education, the follow—up would also act as a validation of these findings.

I realize that the views I have presented here are radical and difficult to implement. I face that every day as I contemplate how to help people behave in environmentally responsible ways. But I gather the strength to face these issues from the knowledge that these views are right in the moral sense. I can accept them as so because I know they come, ultimately, from the Earth and our relationship to her. For me, this belief is tangible. It is a value system based on a reality of which I am a part. It exists in me, not "out there".

The effect this thesis has had on my own personal growth is enormous. It has reached into every facet of my being and turned them all upside down. It has been a very organic process, a process of growth and development. It has set me in motion on the path of my life in a much more directed and confident way. Before I began this thesis, I really had no idea what I wanted 'to be'; the process has answered that question for me: I am an environmentalist who wishes to help people re—connect with the Earth that gives them life.

BIBLIOGRAPHY

Alberta Education, 1983, Environmental Education Manual for Grades I to XII.

Alf, H., 1981, "The Failure of Education", in Alf, H., Ed., Education for Tomorrow's Environment, Proceedings of a Conference Organized by the University of the District of Columbia with the Cooperation of the: Center for Environmental Education, National Audubon Society, Partners for Livable Places, and The American Forestry Association.

Alvord, D., 1972, "Achievement and Attitude", The Science Teacher 34(4):36-38.

Aoki, T. T., 1984, "Interests, Knowledge, and Evaluation: Alternative Curriculum Evaluation Orientations" in Aoki, T. T., Ed., Curriculum Evaluation in a New Key, Curriculum Praxis Monograph #10, Department of Secondary Education: University of Alberta, Edmonton, Alberta, Canada.

Asch, J. & Shore, B.M., 1975, "Conservation Behavior and the Outcome of Environmental Education", The Journal of Environmental Education 6(4):25-33.

Baer, R. Jr., 1985, "Thank You, Professor Knapp, But ... Still More Objections to the Use of Values Clarification in Environmental Education", The Journal of Environmental Education 16(4):33—41.

Barritt, L., Beekman, T., Bleeker, H. & Mulderj, K., 1984, "Analyzing Phenomenological Descriptions", Phenomenology and Pedagogy 2(1):1-17.

Bartlett, V. L., 1984, "The Rules of the Game: Case Study Method and Interpretation Theory", mimeo, Department of Education, University of Queensland cited in Rudduck, J., 1985, "A Case for Case Records?: A Discussion of Some Aspects of Lawrence Stenhouse's Work in Case Study Methodology" in Burgess, R. G., Ed., Strategies of Educational Research: Qualitative Methods, Social Research and Educational Studies Series: 1, The Falmer Press: London.

Berman, M., 1981, The Reenchantment of the World, Bantam Books, Inc.: New York.

Beyer, L. & Wood, G., 1986, "Critical Inquiry and Moral Action in Education", Educational Theory (Winter):1-14.

Caduto, M., 1983, "A Review of Environmental Values Education", The Journal of Environmental Education 14(3):13—21.

_____, 1985, "A Teacher Training Model and Educational Guidelines for Environmental Values Education", The Journal of Environmental Education 16(2):30—34.

Callenbach, E., 1981, Ecotopia Emerging, Bantam Books, Inc.: New York.

Capra, F., 1981, The Tao of Physics, Fontana: Suffolk, Great Britain.

_____, 1982, The Turning Point: Science, Society, and the Rising Culture, Bantam Books: New York.

Champeau, R., Gross, M., & Wilke, R., 1980, "An Assessment of Teachers' Understanding the Use of 'Goals for Curriculum Development in Environmental Education'", Current Issues VI:218-226. ED197 947.

Childress, R.B., 1978, "Public School Environmental Education Curricula: A National Profile", The Journal of Environmental Education 9(3):2-11.

Clark, E.T., 1988, "Believing is Seeing——Not the Reverse", The Quest 1(1):49—57.

Collins, T.A., Herbkersman, C.N., Phelps, L.A., & Barrett, G.N., 1978, "Establishing Positive Attitudes toward Energy Conservation in Intermediate-Level Children", The Journal of Environmental Education 10(2):18-23.

Devall, B. & Sessions, G., 1985, Deep Ecology: Living As If Nature Mattered, Gibbs M. Smith, Inc.: Salt Lake City, Utah.

Dunlap, R. E., and Van Liere, K. D., 1978, "The New Environmental Paradigm: a Proposed Measuring Instrument and Preliminary Results", Journal of Environmental Education 9:10-19.

Eisler, R., 1987, The Chalice and the Blade, Harper & Row, Publishers: San Francisco.

Erhlich, H.J., 1969, "Attitudes, Behavior, and the Intervening Variables", American Sociologist 4:35-41.

Erickson, F., 1986, "Qualitative Methods in Research on Teaching", in Wittrock, M. C., Ed., Handbook of Research on Teaching, MacMillan Publishing Co.: New York.

Evernden, N., 1985, The Natural Alien: Humankind and the Environment, University of Toronto Press: Toronto, Ontario.

Fox, S., 1984, "Approaches to Environmental History", in Evernden, N., Ed., The Paradox of Environmentalism, Symposium Proceedings, York University.

Freire, P., 1970, Pedagogy of the Oppressed, Continuum: New York.

_____, 1973, Education for Critical Consciousness, Seabury Press: New York.

Giorgi, A., 1971, Duquesne Studies in Phenomenological Psychology, Duquesne University Press: Pittsburgh, Pennsylvania.

Harman, W., 1988, Global Mind Change: The Promise of the Last Years of the Twentieth Century, Knowledge Systems, Inc.:Indianapolis, Indiana.

Heidegger, M., 1962, Being and Time, Harper & Row, Publishers: New York.

Hickman, F.M., 1982, "Education for Citizenship: Issues of Science and Society", The American Biology Teacher 44:358-369.

Hines, J. M., 1984, An Analysis and Synthesis of Research on Responsible Environmental Behavior, unpublished doctoral dissertation, Southern Illinois University at Carbondale.

Hungerford, H.R., and Peyton, R.B., 1976, Teaching Environmental Education, J. Weston Welch: Portland, Maine.

_____, Peyton, R.B., Litherland, R., & Tomera, A.N., 1978, Investigation and Action Skills for Environmental Problem-Solving, Stipes Publishing Co.: Champaign, Illinois.

_____, Litherland, R.A., Peyton, R.B., Ramsey, J.M., Tomera, A.N., & Volk, T.L., 1985, Investigating and Evaluating Environmental Issues and Actions Skill Development Modules, Stipes Publishing Co.: Champaign, Illinois.

Iozzi, L.A. (ed.), 1981, Research in Environmental Education 1971-1980, ERIC Clearinghouse for Science, Math, and Environmental Education: Columbus Ohio.

_____, 1984, Summary of Research in Environmental Education 1971-1982, ERIC Clearinghouse for Science, Math, and Environmental Education: Columbus, Ohio.

Iverson, R., 1975, "An Analysis of the Interrelationships of Environmental Knowledge and Environmental Concern", (Ph.D. dissertation, University of Montana), Dissertation Abstracts International 36(7):4224A.

Kahn, H., Brown, W., and Martel, L., 1976, The Next 200 Years: A Scenario for America and the World, William Morrow: N.Y.

Kochan, R.C. & Allen, R.F., 1981, "Adult Basic Education Goals for Energy Education", The Journal of Environmental Education 12(4):40-44.

Kreisberg, S., 1986, Transforming Power: Toward an Understanding of the Nature of Power in the Experience of Empowerment, unpublished doctoral dissertation, Harvard University.

Kuhn, T. S., 1970, The Structure of Scientific Revolutions, University of Chicago Press: Chicago, Illinois.

Lifton, R. J., 1968, Death in Life: Survivors of Hiroshima, Random House: New York.

Mack, J. E., 1981, "Psychological Effects of the Arms Race", Bulletin of Atomic Scientists, April.

Macy, J. R., 1983, Despair and Personal Power in the Nuclear Age, New Society Publishers: Philadelphia, Pennsylvania.

Milbrath, L. W., 1984, "A Proposed Value Structure for a Sustainable Society", The Environmentalist, 4:113-124.

Miller, G. T., 1985, Living in the Environment: An Introduction to Environmental Science, Wadsworth Publishing Company: Belmont, California.

Mitchell, J. G., 1987, "A Man Called Bird", Audubon, 89(2):81-104.

Moncrief, L. W., 1970, "The Cultural Basis for Our Environmental Crisis", Science, 170:508-512.

Morrison, J., 1986, The Wilderness Solo: Solitude and Re-Creation, unpublished master's thesis, University of Alberta.

Morrison, W., 1987, "Native Education: An Issue of Survival".

Muir, J., 1971, "In Wilderness is the Preservation of the World", in Opie, J., Ed., Americans and Environment, D. C. Heath, Lexington, Mass. cited in O'Riordan, T., 1983, Environmentalism, Pion Ltd.: London.

Naess, A., 1973, "The Shallow and The Deep, Long-Range Ecology Movements: A Summary", Inquiry, 16: 95-100.

National Indian Brotherhood, 1972, Statement of the Indian Philosophy of Education.

Ornstein, R., and Ehrlich, P., 1989, New World New Mind: Moving Toward Conscious Evolution, Bantam Doubleday Dell Publishing Group, Inc.: New York.

Patton, M. Q., 1982, Practical Evaluation, Sage Publications: Beverly Hills, California.

Peyton, R.B., 1978, "An Assessment of Teachers' Abilities to Identify, Teach, and Implement Environmental Action Skills", (Ph.D. dissertation, Southern Illinois University), Dissertation Abstracts International 38(10):6071A.

Quinn, R.E., 1976, "Using Value Sheets to Modify Attitudes toward Environmental Problems", Journal of Research in Science Teaching 13(1):65-69.

Ramsey, J., Hungerford, H.R., & Tomera, A.N., 1981, "Effects of Environmental Action and Environmental Case Study Instruction on Overt Environmental Behavior of Eighth Grade Students", The Journal of Environmental Education 13(1):24-29.

Rist, R. C., 1982, "On the Application of Ethnographic Inquiry to Education: Procedures and Possibilities", Journal of Research in Science Teaching 19(6): 439-450.

Robottom, I. M., 1986, "How Should We View the Innovation Issues of E. E.?", Environmental Education and Information, 5(3):107-118.

Roth, R.E. & Helgeson, S.L., 1972, "A Review of the Research Related to Environmental Education", Environmental Education Information Reports, paper #1, ERIC Information Analysis Center for Science, Math, and Environmental Education: Columbus, OH.

Rudduck, J., 1985, "A Case for Case Records?: A Discussion of Some Aspects of Lawrence Stenhouse's Work in Case Study Methodology" in Burgess, R. G., Ed., Strategies of Educational Research: Qualitative Methods, Social Research and Educational Studies Series: 1, The Falmer Press: London.

Schuman, H. & Johnson, M.P., 1976, "Attitudes and Behavior", Annual Review of Sociology.

Shapiro, H. S., 1983, "Educational Research, Social Change and the Challenge to Methodology: A Study in the Sociology of Knowledge", Phenomenology and Pedagogy, 1(2): 127-139.

Simon, J., 1981, The Ultimate Resource, Princeton University Press: Princeton, New Jersey.

Smith, J. K., 1983, "Quantitative Versus Qualitative Research: An Attempt to Clarify the Issue", Educationa Researcher, 12(3): 33-39.

Soltis, J. F., 1984, "On the Nature of Educational Research", Educational Researcher,13(10): 5-10.

Stapp, W. B., 1974, "Historical Setting of Environmental Education", in Swan, J. A. & Stapp, W. B., Eds., Environmental Education: Strategies Toward a More Livable Future, Sage Publications: New York.

Steiger, B., 1984, Indian Medicine Power, Para Research, Inc.: Gloucester, Massachusetts.

Swan, M., 1975, "Forerunners of Environmental Education", in McInnis, N. & Albrecht, D., Eds., What Makes Education Environmental?, Data Courier Inc. and Environmental Educators, Inc., Louisville, Kentucky.

Thomas, G., 1985, The Search for Active Citizenship, unpublished doctoral dissertation, University of Alberta.

Tozer, S., 1985, "Civicism, Democratic Empowerment, and the Social Foundations of Education", Philosophy of Education Yearbook, pp. 189-200.

UNESCO, 1980, Environmental Education in the Light of the Tbilisi Conference, Education on the Move, Unesco-UNEP International Environmental Education Programme, Environmental Education Series #3.

UNESCO, 1983, Environmental Education: Module for Pre-Service Training of Science Teachers and Supervisors for Secondary Schools, Unesco-UNEP International Environmental Education Programme, Environmental Education Series #7.

VandeVisse, E. & Stapp, W. B., 1975, "Developing a K-12 Environmental Education Program" in McInnis, N. & Albrecht, D., Eds., What Makes Education Environmental?, Data Courier Inc. and Environmental Educators, Inc., Louisville, Kentucky.

van Manen, M., 1984, "Doing" Phenomenological Reasearch and Writing: An Introduction, Curriculum Praxis Monograph #7, Department of Secondary Education: University of Alberta, Edmonton, Alberta, Canada.

Walter, E., 1981, The Immorality of Limiting Growth, State University of New York Press: Albany, New York.

Weber, M., 1958, The Protestant Ethic and the Spirit of Capitalism, Scribner's: New York.

Werner, W., 1984, "Evaluation: Sense-Making of School Programs" in Aoki, T. T., Ed., Curriculum Evaluation in a New Key, Curriculum Praxis Monograph #10, Department of Secondary Education: University of Alberta, Edmonton, Alberta, Canada.

Wood, G., 1986, "Education for Democratic Empowerment: Empowering Democratic Educators", unpublished manuscript.

Zukav, G., 1979, The Dancing Wu Li Masters, Bantam Books, Inc.: New York.

APPENDIX A

November 26, 1986

Dear Teacher:

I am a graduate student working on my Masters of Education at the University of Alberta specializing in environmental education. As research for my thesis, I am compiling and developing teaching strategies that may help increase students' abilities to take action on environmental issues. Since there is no official curriculum for environmental education in the Edmonton area, a wide variety of approaches can be taken. I am interested in finding out what these approaches are and which ones seem to be most successful at increasing student action. This research should be of use to the teachers in this, and other, areas.

I would appreciate your completing and returning the enclosed questionnaire. The greater the number of teachers that respond, the more useful the results of the study will be, so I hope you will cooperate. Your participation is, in any case, voluntary and confidential. The results of the study will also be anonymous. All data collected will be treated as confidential and non-evaluative and will be destroyed when no longer needed. The completion and return of the questionnaire assumes your consent to the anonymous and confidential use of all data. The fact that I have your name implies that I have received permission from your school district to survey in your area.

The questionnaire should take about 20 minutes to complete. There are no right or wrong answers. Please answer each question as completely and honestly as possible. If there are questions you do not wish to answer or which do not apply, you may leave them blank.

This questionnaire will provide me with a baseline set of data upon which I can begin to develop the teaching strategies. To further refine the study findings, I would like to interview some of the teachers participating in the study. If you are willing to be interviewed, at your convenience, please include your name and a phone number where I can reach you.

I would greatly appreciate a prompt response, therefore I ask that you return the questionnaire by December 19, 1986. A self-addressed stamped envelope has been included to facilitate this. In return for your participation in the study, I would like to send you a summary of the findings of my study. If you think this would be helpful, please indicate your interest in the space provided on the questionnaire.

Thank you very much for your assistance with my research. If you have any questions or comments, I can be reached through the Department of Secondary Education (T6G 2G5) or by calling 432-2017 (office) or 439-9817 (home).

Sincerely yours,

Laura A. Keeth
Graduate Student

Dr. Wallie Samiroden
Supervising Professor

ENVIRONMENTAL EDUCATION QUESTIONNAIRE

Directions: The following questionnaire is intended to collect teachers' input about teaching methods in environmental education. Please answer carefully. Skip those questions that do not apply.

1. Please give your definition of environmental education.

2. Please check the statement(s) that apply to you:

   a. ____ I teach a unit that is largely environmental education.
   b. ____ I incorporate environmental education into my other class units.
   c. ____ I do not specifically teach environmental education.
   d. ____ I avoid teaching environmental education.

   If you checked statement "c" or "d", please give the major reason(s) why.

3. If you have taught a unit in environmental education, what sources have you used in developing your lessons in this area?

4. a. Do you feel those sources were adequate? ____ yes ____ no
   b. Why or why not?

5. Approximately what % of the curriculum in each course you teach do you spend with environmental education? How much would you like to spend?

grade	course	% spent	% would like to spend

6. Which of the following methodologies do you use in environmental education in your classroom? Which ones would you like to use?

do use	would like to use	
____	____	identifying issues and positions
____	____	clarifying values
____	____	discussion of student attitudes
____	____	investigating issues (background research)
____	____	researching environmental problems
____	____	decision making
____	____	implementing decisions through action

____ ____ discussion of ethical and moral implications of environmental issues

____ ____ other _____

7. Please describe the major obstacle(s) that prevent you from using the methodologies you identified in the "would like to use" column in question 6.

8. Please list the environmental issues used in your classroom?

9. a. How do you decide which issues will be used in the classroom?

b. How much student input is involved in those decisions?

10. What do you feel is the single largest obstacle that discourages students from taking action on the things they learn about environmental issues and problems?

What division(s) do you teach? ____ I ____ II ____ III ____IV

What is your teaching major? _____

If you would like to be considered for an interview (____) or receive a summary of my findings(____), please fill out the following information:

Name:
Address:

Phone:

INTERVIEW GUIDE
FOR
TEACHER INTERVIEWS

The interview will begin by discussing the teacher's responses to question 6 of the questionnaire:

> Which of the following methodologies do you use in environmental education in your classroom? Which ones would you like to use?
>
> identifying issues and positions
> clarifying values
> discussion of student attitudes
> investigating issues (background research)
> researching environmental problems
> decision making
> implementing decisions through action
> discussion of ethical and moral implications of environmental issues
> other

I will do this by focusing on the approaches the teachers take in the methodologies they indicated they use through questions such as:

> How do you handle clarifying values (or student attitudes, or ethics and morals, etc.) in your classroom?
>
> What effect do you think your methods have on the students' ability or inclination to actively participate in environmental issues? Why do you choose to have students involved in these ways?
>
> What problems do you encounter when trying to use a particular approach?
>
> Are there any changes you could/would make to your approach that would increase the active participation/citizenship of the students? What might be the best ways to get students involved in active citizenship?

The above questions will be given to the teachers prior to the interview session in order to allow them time to consider their answers. It is hoped that this will increase the depth and insight of the answers they give.

From these questions, I would like to move on to the topic of empowerment.

> Some people suggest that students don't actively participate in environmental issues for two primary reasons:
>
> 1. They don't have the skills or knowledge about how to take action.
> 2. They feel helpless, powerless, and ineffective with respect to their abilities to make real changes.
>
> What do you think about this?
>
> How does the sense of powerlessness relate to environmental issues and problems (and therefore, to environmental education)? Is it an inherent aspect of the magnitude of the problem, or is it indicative of a general lack of power in these students' lives?
>
> What does it mean to for students to have the power to take an active role in environmental issues? How can this be achieved?
>
> Have you ever been involved with a class or unit where students became actively involved in environmental participation? What happened?

What factors contributed to or detracted from your/their success in achieving a sense of empowerment?

How can teachers affect students' sense of power?

In an empowering classroom, what is the role of the teacher? Of the student? Of the curriculum?

Are there any unique problems associated with environmental education that need to be addressed when attempting to create an empowering experience? Any advantages?

Dear Student:

When I first became concerned about environmental problems in high school, I felt like there was nothing I could do about them. They seemed like such huge problems that I could never have any effect on solving them. So I basically ignored the problems while I went to university. But my concern about the environment was always in the back of my mind, making me feel like there was something I was forgetting; like something was wrong.

When I started my Master's degree, I wanted to find ways to help other students have more power to act on environmental problems. I talked to some teachers who have helped their students become more powerful. I asked people who are working to improve the environment what first caused them to take action. And now I would like to talk to some students.

I need to know how you feel about environmental problems. Even if you've never really thought about these type of problems before this class, your views are still valuable to me.

If you want to help me with my study, it will take about 1 hour for the interview. I will need your parents' permission, so, if you live at home, have them sign below. If you staying in Lister Hall during Summer Youth University, put your home phone number below and I will call to ask permission.

The interviews will be taped and I may use parts of our conversation when I write my thesis. I won't use your name anywhere in the thesis, so you will be anonymous. You are also free to withdraw at anytime.

The more students I can talk with, the better, so I hope you will help me with this study. If you decide to help, let me know so we can set up a time for an interview.

Thank-you

Laura A. Keeth
Department of Secondary Education
University of Alberta
432-2017 (office) 439-8332 (home)

Name_____

Parent's
Name_____

Home Phone #_____

INTERVIEW GUIDE
FOR
STUDENT INTERVIEWS

• What concerns you about the environment today? (I may have to explore their understandings of the concept of "environment" prior to this.)

• How do those concerns make you feel? (This may come out in the previous question.)

• What do you think should be done about these problems? (This should give me an idea of how they view their own power responsibilities and abilities.)

• How do you see your role in doing something about these problems? (They may or may not answer this in the previous question.)

Empowered Responses

• Why do you feel you can do these things?

• Is there anything you've done in the past that makes you feel like you could do this?

• What kind of influence did your family have on your being able to act on these problems?

• Your teachers?

• Your friends?

• Events in the world?

• Do you think other kids feel the same way you do about being able to take action?

• If not, what do you think keeps them from being able to do the things you feel you could do?

• Have you ever actual done anything like what you've been talking about?

Powerless Responses

• Why do you feel you can't do anything about these problems?

• Have you ever had tried to do something about a problem like this and not been able to?

• What influence do you think your family had on you belief that you can't do anything about these problems?

• Your teachers?

• Your friends?

• Events in the world?

• What would have to happen for you to feel like you could really do something about one of these problems?

• Is there some other type of action you think a person your age can or should take?

Dear Environmentalist:

I am a graduate student working on a master's degree in environmental education. I am trying to identify teaching methodologies and approaches that help increase a student's ability and inclination to take action on environmental issues they care about. In order to gain a better understanding of the dynamics of action, I am including in my study a section on people who are currently involved with action on environmental issues.

I am interested in hearing your own personal history of how you came to be involved in environmental action. Is there one event in your life that served as the catalyst for your action, or was it a long process? At what age did you first decide that environmental problems were important? At what age did you first decide to act on them? How did friends, family, school, work, etc., affect your path? Any information you feel is important in explaining how you decided to become environmentally active would help my study a great deal.

Of course, all of your responses will be treated with confidentiality. I may excerpt statements or comments for illustrative purposes, but no names or pseudonyms will be used. If you would like to participate in this study, please take a few minutes to put your story down on paper (one or two pages, typed or hand written would be fine). I have included a stamped, self-addressed envelope. I would also appreciate it if you could pass this letter on to others whose stories may be beneficial to my study.

Although my focus is on secondary education, I think this study will prove helpful for anyone interested in helping promote environmentally responsible actions. I am very interested in hearing your story and I hope you will seriously consider responding. If you request, I can send you a summary of my findings upon completion. Thank-you for your help with this project.

Sincerely,

Laura A. Keeth
Department of Secondary Education
University of Alberta
Edmonton, Alberta Canada
T6G 2G5

APPENDIX B

EXCERPT FROM TEACHER TRANSCRIPTS: ACTION APPROACH

T: The one big one that we did a couple of years ago that I can maybe refer to is one that I thought was a pretty excellent environmental issue; is when we were doing a unit in the spring time, about this time of the year on pollution of the environment, we had a very, very rough year that year for Edmonton water. For about two weeks it was just horrendous. Newspapers picked it up, media picked it up, kids were drinking it, trying to bathe in it, trying to cook with it, their parents were talking about it. So it became an issue really quick that everyone wanted to learn about. So, we definitely investigated that one from the point of view of forming groups based on interest. Some groups were on the phone talking to people, some groups were in the library doing research, some groups were going on field trips after schools with a parent to libraries and the like. And we also took up, we analyzed all the newspaper articles that we brought in. And we went through them trying to determine which statements were hearsay, which statements were scientific data, which statements were a misuse of data, misrepresentation of data. And then we would go and try and cross-reference what we had discussed by trying to find our own information. And that lead to all kinds of research, all kinds of ways and all kinds of places, including a lot of the films that are available on water, videotapes on water. We had one Department of Environment Water Resources person come in and talk to us about water. We wrote Health and Welfare in Ottawa and got the Canadian drinking water standards. We wrote provincial government and found out what the Dept. of Environment were telling municipalities. We wrote the Edmonton Dept. of Water and Sanitation and found out what guidelines they were trying to follow. So we got all that kind of stuff.

L: How would you describe the dynamic in that class as far a who was coming up with the ideas where to go to look for information?

T: I would say it was about 50-50 with about 50% of the ideas coming from the students first of all and then when they started to get stuck or there weren't enough ideas for all the kids then I had a number of them. But I tried to let them come up with as many ideas on their own, until they found... and I told them to talk to their parents also about where they might be able to get information; we had one man who was selling water distilling machines who wanted to come in and do a demonstration, and it was just a riot....I guess the idea of all the research was to come to a decision about whether Edmonton drinking water was safe. And in the end all the groups reported back from all the groups. And then the students had to do some writing based on the evidence that they had heard, gathered, analyzed, what they thought was the situation. Most of them, now it really would have been good if I had polled them at the first and then at the end, now unfortunately I didn't poll them, on paper, each individual as to whether they thought the water was unsafe. But my general feeling on that issue was that most of them were really concerned about the drinking water, from what they had heard in the media and on the papers, they did not think it was safe. I think when we finished the whole unit, they were aware that there was a certain time of the year when the water was probably unsafe to drink, during spring run-off, and they had a list of chemicals that got into the water through snow-dumps, through run-off and picking up materials off the roads. The other time they identified it as being unsafe was after a major rainstorm after a long period without rain and all the streets were washed and all the water went into the river through the storm sewers and was picked up by the different water treatment plants. Because they identified quite a number of substances that were in the water and are not dealt with by Canada drinking water standards and consequentially cities and municipalities have not upgraded their plants to the kind of treatment that is required to get rid of those substances. They were very concerned about those two periods of time. The other periods of time, they were pretty sure that the water was as safe as it could be. They were still rather concerned about some of the stuff that was getting into the rivers and about the pollution. I'm saying this in my own language but these are things that came up. They were concerned about what levels were safe and what weren't. Because there is quite a bit of difference between Health and Welfare standards and what the city says, the city actually goes above the standards. But then the whole issue came up, from several of the real sharp students, "Hey, how come Health and Welfare drinking standards doesn't cover some of these chemicals?" So we went back and looked at when these standards were written. And they were probably written prior to peoples' knowledge of these chemicals or

prior to these chemicals being dumped into rivers. So that leads us to the action part of the thing. We then explored what can we as citizens do to ensure that we get the safest possible drinking water. And of course that's when the people with the water purifying machines came in to talk to the kids. And that's where the idea was that maybe the water should be more carefully monitored, maybe the government shouldn't allow as much dumping in the rivers. And then the next things was OK how do you make your voice heard, how do you make changes? And they came up with a lot of idea all the way from going and talking to the local aldermen. Write the mayor was a big one, write the government. So right away there's the government, so another big issue is the government, so let's explore that. We got a little bit of help from Social Studies now in terms of helping the class. We helped them pinpoint some of the people in government who were the decision-makers that had the responsibility towards the public in terms of safe water. So then letter got written. Mdme. Susanne Blaide-Grenier, etc. And they wrote letters and the letters that got mailed were exactly the letters that the kids wrote. The only thing I or any other teacher helped them with was the grammar, the structure, so that the letter that went out of here was polished. So there were quite a number of rewrites. And also the letters had to be taken home and read by their parents so their parents know what was going on. And I also thought that was a good idea because their parents were also involved in this and I thought it was a good idea for the parents to see that their kids were actually at the stage of letter-writing.

L: Did you get any responses...

T: Yes lots of responses from all...

L: No, any responses from the parents?...

T: Oh, the parents? No negative responses at all. Lots of verbal feedback. "I don't have time to do this myself, I'm glad somebody in my family is doing something about it", that kind of stuff. That was two years ago so I'm a little foggy, but I never had any negative responses at all, like "What are you doing to these kids", because everybody was really concerned, it was a motherhood issue, and also I think the students were really good about passing on to their parents and their families what they were learning. And they were learning the whole story. They were learning about why industries dump into the river, they were learning about whose responsible for pollution levels in the rivers, whose responsible for monitoring that. Do we ourselves pollute the rivers? We talked about sewage. So I think it was a well-rounded, so there wasn't any real concern by the parents. I think if there was any concern by the parents, it was, "Holy mackerel, this is a lot worse than we thought it was!" And then we got all kinds of letters back and they were amazed, totally amazed. They wanted to say, "I'm a kid at a school, and..." and I told them, don't do that. Write it as a citizen. You don't have to say who you are or what you do. When I write letters to government, I never tell them what I do, what my job is. I tell them what I'm concerned about, I ask them a series of questions. So I helped them with an action letter kind of approach. I actually help them with that. Because I've been working on that for years myself and there are some good formats for approaching politicians to get them to respond to you rather than just sending them a beef: "My water tastes lousy, blah blah blah, so and so." You get nothing out of that. So I help them structure that quite a bit. And they were amazed at the responses. And then they followed up on some of the letters because some of the letters were actually asking them, from the mayor of the city was get in touch with Mr. Poderinsky who was the Edmonton water and sanitation man, and arrange to talk to him, so we got a hold of him and he sent us to another man, and we arranged to have a tour of the water plant. So the next thing was from probably 85 students studying it we got down to the final key group of about nine who actually followed through with the letters. I didn't take everybody down there because at that point in the year we were really busy and I felt that only the kids who had written and had got responses and were keen, a lot of them didn't write much, a lot of them never even mailed their letters. I figured that's fine, you've gone through the process. I haven't got the time to push you so I just rolled with the kids who were still rolling. And we ended up taking nine kids down to the water plant. And they have a really excellent tour. They asked a lot of hot questions to the water manager down there, and his mind was blown as to how much the kids knew. You get some real sharp grade seven kids who have done a lot of work and they know a lot. So we got to the water plant and they were told that there, the provincial government told them,

that came out about a month later, that there was going to be a study done by Steve Hrudy, this study has now been made public. And the man down at the water plant mentioned this study, and in fact two girls out of the nine actually were sharp enough two years later to pick up on the news and in the papers that this study had come back and they actually came to talk to me when they were in grade nine two years later about what the recommendations were. Now that's from 85 down to 2 after three years and I was pretty excited, it doesn't seem like many, but I was pretty excited because that's the first time that I'd ever, as a teacher, been able to go full circle that way, on an issue. I'm sure a lot of these kids have many things going on in their minds after they come through some of this issue approach stuff that probably affects them, hopefully, for a long period of time, one way or another, but that's the first time the whole thing went around.

L: With these students that went ahead with the action, took it all the way, what do you think it meant to them to be active. How did they feel about doing that, did they feel that was an important achievement?

T: Well, ya, I think they really enjoyed it first of all. I think they were very surprised. All of them went from being whiners and complainers and, "Ooo, this water is horrible. Its going to kill us," all the way to understanding the whole drinking water concept, the whole safe water concept: information, ok, they got information. And then as they got the the stage of trying to do something with that information, discussing with other people, writing letters involved in what they have learned to understand. And then I think the big kick in the pants came when they got letters back. I don't think they ever realized that a politician, I mean they got letters from the premier, and these kids were excited, they'd come bouncing down the hall first thing in the morning, waving the letter, Hey Mr. _____, Mr. _____, look what I got, it really blew their minds... and that in itself was a self perpetuating thing. What can we do next, where do I go next, OK well let's talk about it, what have you done, read the letter, what do you think you need to do next. So once they got rolling on it, it was great, their motivation got up, they could see that they were having some impact on someone that they never thought they would. A couple of them went and met with Milt Paul whose an MLA and expressed their concern to him. And they came back and told me what they thought about Milt Paul and how he dealt with the situation. And then they talked to another politician and then they had some comparisons to make about the two men. So it was really neat, and as they got into it more, the motivation seemed to grow and their confidence seemed to grow and what they thought they could accomplish seemed to grow. So maybe, going back to one of your earlier questions, so maybe as a teacher in the future, my seeing that go through like that once maybe by my just explaining that to another class and letting them know that some kids did go this far with it, some of the students here might even know some of those students because they would be grade ten and eleven now and some of these kids are younger brothers and sisters. It might be something that is more real and tangible for them now and it might consequently, and I'm just guessing here now, but maybe that in itself would fire up a few more people to go for it. I know that there were a lot of them in the class that were really bothered by the fact that they didn't get to go on the tour. And when they finally saw that, hey they get to go on the tour, how come we can't come, we were a part of that. I'll tell you why you can't come because... I'd love to take you all, but there are time restrictions here and these kids did all these extra things that you had a opportunity to do but you didn't bother following through. Maybe some of those students come up with a project in the future with some teacher in school, or in the community, they might say hey look where those guys got because they pushed a little harder, I don't know I'm just guessing.

TEXT FROM *THE MOTHER EARTH HEALING SOCIETY* BROCHURE

The Mother Earth Healing Society is made up of women from all nations, from all walks of life, who are dedicated to the preservation and healing of our Mother, the Earth, through the teachings of Native cultural values.

We feel that all humans should learn, once again, that we are the caretakers of the Earth, the plants and the animals; we must protect them. We all have a responsibility to leave our Mother healthy and strong so she can nurture those we bring into this world.

As women, we have great gifts that we must let ourselves come to know once more. And we must use those gifts to bring about the changes our world so desperately needs. The Mother Earth Healing Society helps women re—connect with our gifts through healing circles, gatherings, and projects.

You are welcome to join us.

The Earth is a living being. She has her own blood: the rivers, streams and lakes. She has her own bones: the rocks and mountains. She has her own nerves: the energy lines and magnetic fields. And she has her own internal regulation: the cycles that return the water to the land, the nitrogen to the plants, and the oxygen to the animals.

Humans must come to understand how we serve the Earth. We must learn our place in the cycle of life on this planet we call home. Native traditional teachings tell us where we belong and what our responsibilities are so that we may live in harmony with the Earth and all the beings living upon her.

Healing the Earth requires that we learn to listen to the mind, the body, and the spirit. The Mother Earth Healing Society reflects the teachings of the braid that gives voice to each of these aspects of our nature.

Our mind is reflected in the work we do with educating people about Native traditional values through projects such as the Cross—Cultural Environmental Education Program.

Our body is reflected in the action we take to preserve and heal the Earth through environmental activism and support of other environmental and Native groups.

Finally, our spirit is reflected in the healing circle where we learn to heal our own spirits that we might continue the work in a strong and hope—filled manner.

We are, red, yellow, black, and white people, a part of the whole of humankind, living together on our Mother, the Earth. We all contribute to the pain the Earth is feeling and we must combine our gifts of intelligence, vision, strength, and motivation to heal that pain.

The healing of the Earth begins within each of us, within our own mind, body and spirit. This healing then extends itself to our families, communities, nations, and the entire Earth. Only when we look within our own hearts with complete honesty does the healing begin.

Through the traditional teachings of the past, we learn strength to work in the present in order to make the future a better place for the generations to come.